

# *Operator's Manual*

**SETTING UP INSTRUCTIONS**



**McCORMICK**

**Cub-174**

**Runner Planter**

for use with

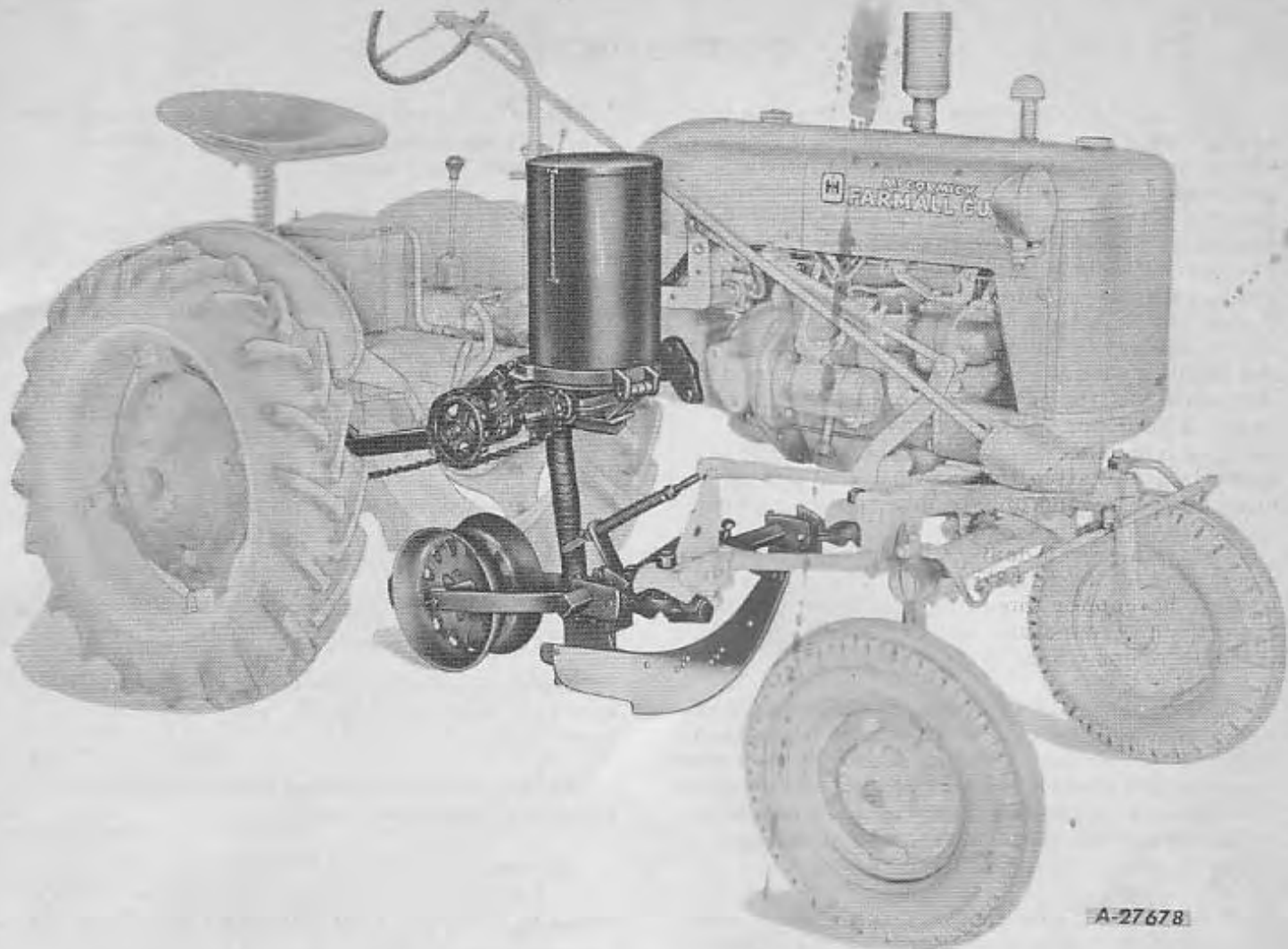
**Farmall Cub Tractor**

**INTERNATIONAL HARVESTER COMPANY**

180 North Michigan Ave.

Chicago 1, Illinois, U.S.A.





CUB-174 One-Row Runner Planter (Touch Control).

# INDEX

Description	Page	Description	Page
To the owner . . . . .	2, 3	Adjusting and operating instructions . . . . .	5
Adjusting and operating instructions . . . . .	4 to 30	Planting on beds . . . . .	5
Chains . . . . .	4	Pressure springs . . . . .	5
Combination hopper . . . . .	13 to 25	Seed mechanism . . . . .	4
Corn planting equipment . . . . .	16 to 25	Type "C" duplex hopper . . . . .	26, 27
Cotton planting equipment . . . . .	15	Setting up instructions . . . . .	31 to 44
Peanut planting equipment . . . . .	15	Countershaft . . . . .	34
Fertilizer units . . . . .	28 to 30	Fertilizer units . . . . .	41 to 44
Flat planting . . . . .	5	Front rockshaft . . . . .	32
General . . . . .	4	Furrowing attachment . . . . .	39
Lubrication . . . . .	4	Gauge shoe attachment . . . . .	40
Planting distance table . . . . .	6	Marker attachment . . . . .	38
Planting distribution tables . . . . .	7 to 12	Master control lever . . . . .	31
Corn . . . . .	12	Runner wings and dirt shields . . . . .	37
Cotton . . . . .	7	Spring tooth covering attachment . . . . .	41
Grain sorghum, small seeds . . . . .	10, 11	Type "C" duplex hopper . . . . .	37
Soybeans . . . . .	8, 9	Universal mounting frame . . . . .	33

## TO THE OWNER

The Cub-174 One-Row Runner Planter is designed for use with the Farmall Cub Tractor. The operator of this planter has a clear unobstructed view of the seed row and is able to assume a comfortable position on the tractor seat and follow guide marks without fatigue. The ground unit is a compact unit which can readily be attached to or detached from the Universal Mounting Frame without disturbing any of the set adjustments. This assures that the planter will work at the same depth and do the same job when it is reattached as when last used. The hopper is driven by a sprocket leading from the right rear axle. The hopper drive is automatically thrown in and out of gear as the ground unit is lowered or raised.

This planter is designed to plant crops in rows spaced 36" to 48" apart. The planter includes the hopper mounting and drive mechanism and a ground unit with runner and adjustable press wheel.

The ground unit is the hinged flexible type, designed so the runner will float independently of any other ground working tools. When either bedding or furrowing, and hard or difficult soil conditions are encountered, the runner and press wheel maintain the desired planting depth.

The Combination Hopper is furnished regularly with this planter. Three styles of hopper bottom equipment are available as follows:

Cotton Bottom Equipment for gin run or reginned cotton seed.

Corn Bottom Equipment for acid delinted cotton seed, field corn, sweet corn, pop corn, kaffir corn, broom corn, beets, beans, peas, sunflower, melon, cucumber and many others.

Peanut Bottom Equipment for peanuts either shelled or in the shell.

By selecting the proper bottom equipment and the seed plates to go with it, a great variety of seeds may be handled. The function and purposes of this hopper are fully explained elsewhere in this manual.

The planter may be obtained for use with tractors equipped with hydraulic touch control or with the necessary parts for manual control. The rear rockshaft unit is used with tractors equipped with hydraulic touch control when the cultivator rear track sweep is used to remove the wheel tracks while planting. This unit is covered in the manual furnished with the cultivator. The master control lever and the front rockshaft are required for manual control.

The Universal Mounting Frame is required for all front-mounted implements such as cultivators and planters.

The basic units listed above have been established to avoid repetition of parts and to reduce the over-all expense when the owner of more than one implement requires these units. Since they are also required for other machines they are furnished only when ordered and are not included in the price of the planter. This results in considerable savings to the owner.

To meet conditions imposed by various soil conditions, special equipment and attachments are available as follows:

Runner Wings and Dirt Shields to sweep off the tops of beds.

Gauge Shoe Attachment, used when more accurate depth control is required in loose, sandy soil.

Spring Tooth Covering Attachment, for additional seed coverage.

Marker Attachment (Shoe Type), for use when flat planting or where the tractor wheel tread is different from the rows being planted.

Bedding Attachment, for planting on beds.

Shovel Furrowing Attachment for planting in furrows. Any shovel or sweep listed for Farmall cultivators may be used. The shovel or sweep may be obtained on special order. This attachment also can be used when furnished with disks to remove the balk left behind the disks.

The Combination Disk Bedding and Shovel Furrowing Attachment may be obtained for performing either the bedding or the furrowing operation.

The Type "C" Duplex Hopper may be obtained when desired. It is mounted on the regular hopper bracket by means of adapting parts.

This hopper is divided into two sections so that two kinds of seed may be handled and dropped separately or at the same time as desired. It is a great favorite with peanut growers because of its ability to handle peanuts, either shelled or in the shell, with accurate placement of the seed.

The Cub-53-A Fertilizer Unit is designed for fertilizing and flat planting at the same time.

The Cub-53-AA Fertilizer Unit is designed for fertilizing and planting when either bed planting or furrow planting.

When flat planting, fertilizer is deposited in a shallow trench beside the seed row by means of one of the three styles of applicators. These are the Deep Applicator, the Runner Applicator and the Disk Applicator. The Disk Applicator is provided with a covering blade to cover the fertilizer. The type of applicator desired should be specified when ordering the machine. The Runner Applicator will be furnished on orders which fail to specify the applicator desired.

When bed planting, fertilizer is deposited to one side of the seed row and slightly in front of the bedding disks. The fertilizer is covered by the action of the disks. Any one of the three types of applicators may be used. The applicator standard is clamped to the ground unit front tool bar and set slightly to one side of the seed row. The covering blade is not needed with the Disk Applicator.

When furrow planting, fertilizer is deposited directly behind the shovel, or to one side with the Deep Applicator. Note that neither the Runner Applicator nor the Disk Applicator is recommended for furrow planting.

One hopper with delivery mechanism is mounted on the right side of the tractor. The hopper has a capacity of approximately 65 pounds of average commercial fertilizer. A fingered feed wheel revolves in the bottom of the hopper, carrying the fertilizer under an adjustable gate to the discharge opening.

The quantity of fertilizer sown is regulated by changing a lever outside the hopper which

controls the gate opening, by changing the feed wheels within the hopper, or by changing the sprocket on the feed shaft. Two extra feed wheels may be obtained on special order. The range of distribution may be from 56 to 1740 pounds per acre. The gate opening lever will regulate from 140 to 680 pounds per acre, using the slow speed sprocket and the regular feed wheel. When using the fast speed sprocket and the regular feed wheel, the range is from 260 to 1260 pounds per acre. These figures are approximate and are based on average free-running commercial fertilizer and 40" row spacing.

The fertilizer delivery assembly is the same for the planter as for side dressing with the Cub-144 Cotton and Corn Cultivator. It includes the hopper and mounting bracket. When fertilizing beside the crop row, the planter drive mechanism is left in place and the seed hoppers, seed tubes and ground units are removed.

You are urged to consult your International Harvester Dealer concerning special planting problems, the type of hopper bottom to be used with the crops being planted and seed plates to match the seed. Equipment is available for your planter to plant nearly every seed commonly planted in rows. Within the International Harvester Company are men who have spent years in research and study of planting problems. Let the experience of these men serve you.

Be sure to read the Instructions for Adjusting and Operating in this manual. Check each item referred to and acquaint yourself with the adjustments required to do a good planting job and to get maximum trouble-free service from your machine.

Remember, a planter properly lubricated and adjusted saves time, labor and fuel costs.



# INSTRUCTIONS FOR ADJUSTING AND OPERATING

(Setting Up Instructions are on page 31)

## LUBRICATION

Use the pressure lubrication gun furnished with the tractor and keep all bearings and working parts well lubricated.

Lubrication fittings are provided in the following places:

- One 67-1/2° fitting . . . In press wheel hub.
- One straight fitting . . . . .
- . . . . . In 7-tooth sprocket on countershaft.
- Two straight fittings . . . . .
- . . . . . In countershaft bearings.
- Two straight fittings . . . . .
- . . . . . In 7-tooth idler sprockets.
- Two 67-1/2° fittings . . . . .
- . . . . . In feed shaft bearings.
- One straight fitting . . In hopper ring gear.

## SEED MECHANISM

Use kerosene or paraffin oil to cut the paint on the seed mechanism so that the parts will work freely.

Use nothing but kerosene or paraffin oil on the seed mechanism.

## GENERAL

It is recommended that the rear tractor wheels be equipped with either 7-24" or 8-24" pneumatic tires for maximum traction and ground clearance when the planter is in the raised position; however, 6-24" tires can be used.

This planter may be used on tractors equipped with the wide-tread, high-clearance feature having rear wheels with maximum tire size of 7-30", or on regular tractors having 9-24" tires on the rear wheels. When these tires are used, planting distances and distribution tables will be affected. Planting distances will be increased 10%. Distribution quantities will be decreased 10%.

## WIDTH OF ROWS

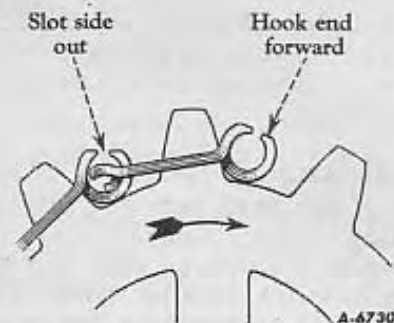
The planter is designed to plant 36" to 48" rows.

## CHAINS

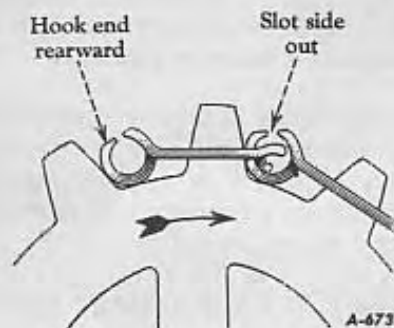
Place the chains on the sprockets as shown in *Illusts. 1 and 2* according to the size of the drive sprocket in relation to the size of the sprocket to be driven.

When the drive sprocket is larger than the driven sprocket, the chain should be placed on the sprockets as shown in *Illust. 1*.

When the drive sprocket is smaller than the driven sprocket, the chain should be placed on the sprockets as shown in *Illust. 2*.



*Illust. 1*



*Illust. 2*

To detach the chain, bend to the coupling position and strike light blows.

## FLAT PLANTING

Two methods of spacing the rows are possible. The first does not require a marker and uses the wheel tracks of the tractor as a guide. To do this, set the tractor wheels to the same width as the rows to be planted, the 40" spacing probably being the most practical although 44" or 48" could be used. Begin to plant along the edge of the field and be sure this first row is straight. On the return pass across the field, line up the wheels on the side of the tractor next to the row previously planted so they will run in the tracks made by the same wheels during the first pass across the field. The remainder of the field is then planted in this manner. It will not be convenient to plant rows spaced different from the tractor wheel tread unless a marker is used.

The second method uses the Marker Attachment which is available on special order. Before beginning to plant, the markers must be adjusted to the row width to be planted. To do this, loosen the marker brace rods and marker pipe, measure from the planter runner to the right marker shoe and set it 3" less than the row width to be planted. Measure to the left marker shoe and set it 3" more than the row width. For instance, if planting 40" rows, set the right marker at 37" and the left marker at 43" from the runner. This is done because the drive sight is set 3" to the right of the center of the tractor.

After the markers are properly set, the lift chain clamps on the marker pipes are set so the markers may both be suspended about 1-1/2 feet off the ground (note that one marker will balance the other). In this position, the two chain stops are clamped one on each side of the chain guide (see "N", *Illust. 43*). The chain stops serve to hold the markers in this position when turning at the ends of the field. When either marker is lowered, the stop will slip through the guide as the chain is pulled. When transporting the machine, raise both markers as high as they will go and hook the "S" hooks to the chain guide ring.

When using the marker, start to plant along one side of the field, then lower the marker to the ground on the side of the tractor next to the

unplanted field. Proceed across the field using some means, such as a "flag", at the far end of the field to keep the row as straight as possible. As the first row is planted, a mark is made to be used as a guide for the next row.

Upon reaching the end of the field, raise the marker to the balanced position, turn around, line up the driving sight with the mark previously made, lower the marker on the side next to the unplanted field and make the next pass across the field. In this manner, plant the remainder of the field.

## PLANTING ON BEDS

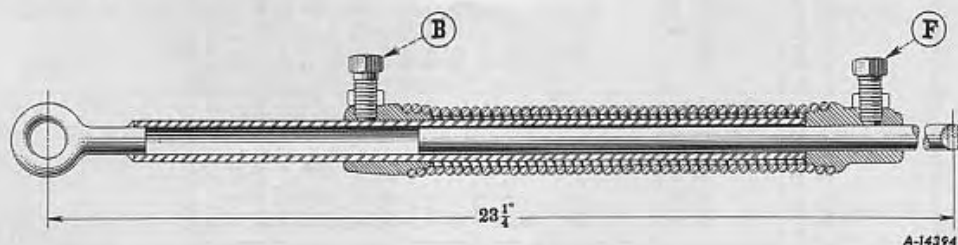
When planting on beds thrown up by a middle buster or bedder, some forethought should be given to the spacing of the beds and the tractor wheel tread to be used with the planter. Beds thrown up with 40" spacing are probably the most practical for the Cub planters, although 38" or 42" spacings may be used, depending on how the tractor is driven when planting.

When the tractor is set for the 40" wheel tread, the wheels will run in the center between the beds of 40" rows. If some other Cub implement is being used which requires the 44" tread (such as the direct-connected plow), the wheels may be left at this tread for convenience and the tractor driven so as to plant in the center of the bed. In this case, a 38" spacing or narrower would not be recommended although rows 40" or wider could be handled.

**SAFETY FIRST:** When planting in fields where beds have been thrown up, be sure to have weights on the tractor wheels or liquid in the tires or both. This is especially important if the wheel tread is set at 40".

## PRESSURE SPRINGS

To provide pressure on the ground equipment, raise the planter, loosen set screw "B" (*Illusts. 3, 34 and 35*), stretch the spring "A" to give the desired tension and tighten the set screw securely.



Illust. 3

Corn Planting Unit  
Pounds of Soybeans per acre-based on 40" rows

	Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio	Pounds per Acre
22-Cell Seed Plate Part No. 3 127 A Size of Cells-27/32 x 23/32" Twelve Seeds per Cell	12-Tooth	9-Tooth	10-20	115 Lbs.
	14-Tooth	12-Tooth	10-20	100 Lbs.
	12-Tooth	7-Tooth	12-40	90 Lbs.
	14-Tooth	9-Tooth	12-40	80 Lbs.
	12-Tooth	9-Tooth	12-40	70 Lbs.
	14-Tooth	12-Tooth	12-40	60 Lbs.
	7-Tooth	12-Tooth	10-20	50 Lbs.
	7-Tooth	9-Tooth	12-40	40 Lbs.
	7-Tooth	12-Tooth	12-40	30 Lbs.
	7-Tooth	14-Tooth	12-40	25 Lbs.
∞ 34-Cell Seed Plate Part No. 3 301 A Size of Cells-5/8 x 7/16" Six Seeds per Cell	14-Tooth	9-Tooth	10-20	125 Lbs.
	9-Tooth	7-Tooth	10-20	100 Lbs.
	14-Tooth	12-Tooth	10-20	90 Lbs.
	12-Tooth	7-Tooth	12-40	80 Lbs.
	14-Tooth	9-Tooth	12-40	70 Lbs.
	12-Tooth	9-Tooth	12-40	60 Lbs.
	9-Tooth	14-Tooth	10-20	50 Lbs.
	12-Tooth	14-Tooth	12-40	40 Lbs.
	9-Tooth	14-Tooth	12-40	30 Lbs.
	7-Tooth	14-Tooth	12-40	20 Lbs.
20-Cell Seed Plate Part No. 3 114 AA Size of Cells-21/32 x 13/32" Six Seeds per Cell	14-Tooth	7-Tooth	10-20	125 Lbs.
	12-Tooth	7-Tooth	10-20	110 Lbs.
	14-Tooth	9-Tooth	10-20	100 Lbs.
	9-Tooth	7-Tooth	10-20	80 Lbs.
	14-Tooth	12-Tooth	10-20	70 Lbs.
	12-Tooth	7-Tooth	12-40	60 Lbs.
	12-Tooth	9-Tooth	12-40	50 Lbs.
	9-Tooth	14-Tooth	10-20	40 Lbs.
	7-Tooth	14-Tooth	10-20	30 Lbs.
	7-Tooth	12-Tooth	12-40	20 Lbs.





**DISTRIBUTION TABLE**  
(Cotton)

**Cotton and Corn Planting Units**  
(Pounds of Cotton per acre-based on 40" rows)

	Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio	Inches Apart in Row	Pounds per Acre
Cotton Planting Unit; 42-Cell Seed Plate; Part No. 621 719 R2; Re-ginned Seed; Size of Cells- 5/16 x 7/16"; Thickness of Plate 9/32"; Two Seeds per Cell	9-Tooth 7-Tooth 9-Tooth 9-Tooth 12-Tooth 12-Tooth	14-Tooth 14-Tooth 14-Tooth 12-Tooth 14-Tooth 7-Tooth	12-40 10-20 10-20 10-20 10-20 12-40	7" 5-1/4" 4-1/4" 3-1/2" 3" 2-1/2"	15 Lbs. 20 Lbs. 25 Lbs. 30 Lbs. 35 Lbs. 40 Lbs.
Cotton Planting Unit; 42-Cell Seed Plate; Part No. 621 719 R2; Gin Run Seed; Size of Cells- 5/16 x 7/16"; Thickness of Plate 9/32"; Two Seeds per Cell	7-Tooth 7-Tooth 12-Tooth 14-Tooth 14-Tooth 12-Tooth 14-Tooth	14-Tooth 12-Tooth 14-Tooth 7-Tooth 9-Tooth 7-Tooth 7-Tooth	12-40 10-20 10-20 12-40 10-20 10-20 10-20	9" 4-1/2" 3" 2-1/4" 1-3/4" 1-1/2" 1-1/4"	5 Lbs. 10 Lbs. 15 Lbs. 20 Lbs. 25 Lbs. 30 Lbs. 35 Lbs.
Cotton Planting Unit; 38-Cell Seed Plate; Part No. 621 717 R2; Gin Run Seed; Size of Cells - 15/32 x 33/64"; Thickness of Plate 9/32"; Three and Four Seeds per Cell	7-Tooth 7-Tooth 12-Tooth 14-Tooth 14-Tooth 12-Tooth	14-Tooth 12-Tooth 14-Tooth 7-Tooth 9-Tooth 7-Tooth	12-40 10-20 10-20 12-40 10-20 10-20	10" 5" 3-1/2" 2-1/2" 2" 1-3/4"	10 Lbs. 20 Lbs. 30 Lbs. 40 Lbs. 50 Lbs. 60 Lbs.
Corn Planting Unit; 16-Cell Seed Plate; Part No. 1 978-A; Acid Delinted Seed; Size of Cells-5/8 x 3/16"; Three Seeds per Cell	7-Tooth 9-Tooth 7-Tooth 7-Tooth 14-Tooth 9-Tooth 12-Tooth 12-Tooth	14-Tooth 14-Tooth 14-Tooth 12-Tooth 12-Tooth 7-Tooth 14-Tooth 7-Tooth	12-40 12-40 10-20 10-20 12-40 12-40 10-20 12-40	24" 18" 14" 12" 10" 9" 8" 7"	6 Lbs. 8 Lbs. 10 Lbs. 12 Lbs. 14 Lbs. 16 Lbs. 18 Lbs. 20 Lbs.
Corn Planting Unit; 32-Cell Seed Plate; Part No. 1 929-A; Acid Delinted Seed; Size of Cells- 13/32 x 5/16"; Use Filler Ring 13 870-A; One Seed per Cell	7-Tooth 9-Tooth 7-Tooth 9-Tooth 12-Tooth 14-Tooth 14-Tooth	14-Tooth 12-Tooth 12-Tooth 7-Tooth 14-Tooth 12-Tooth 7-Tooth	12-40 12-40 10-20 12-40 10-20 10-20 12-40	12" 8" 6" 4-3/4" 4" 3-1/2" 3"	4 Lbs. 6 Lbs. 8 Lbs. 10 Lbs. 12 Lbs. 14 Lbs. 16 Lbs.
Corn Planting Unit; 16-Cell Seed Plate; Part No. 3 313 A; Acid Delinted Seed; Size of Cells- 15/32 x 9/32"; Thickness of Plate 1/4"; One to Two Seeds per Cell	7-Tooth 9-Tooth 7-Tooth 9-Tooth 12-Tooth 14-Tooth 12-Tooth 14-Tooth	14-Tooth 14-Tooth 12-Tooth 7-Tooth 7-Tooth 7-Tooth 9-Tooth 9-Tooth	12-40 12-40 10-20 12-40 12-40 12-40 10-20 10-20	24" 18" 12" 9" 7-1/4" 6" 5-1/4" 4-1/2"	3 Lbs. 4 Lbs. 6 Lbs. 8 Lbs. 10 Lbs. 12 Lbs. 14 Lbs. 16 Lbs.
Corn Planting Unit; 16-Cell Seed Plate; Part No. 3 314 A; Acid Delinted Seed; Size of Cells- 7/16 x 1/4"; Thickness of plate 1/4"; One to Two Seeds per Cell	9-Tooth 7-Tooth 9-Tooth 12-Tooth 9-Tooth 14-Tooth 12-Tooth 14-Tooth	14-Tooth 14-Tooth 7-Tooth 7-Tooth 7-Tooth 9-Tooth 7-Tooth 7-Tooth	12-40 10-20 12-40 12-40 10-20 10-20 10-20 10-20	18" 14" 9" 7" 5-1/2" 4-1/2" 4" 3-1/2"	3 Lbs. 4 Lbs. 6 Lbs. 8 Lbs. 10 Lbs. 12 Lbs. 14 Lbs. 16 Lbs.
Corn Planting Unit; 16-Cell Seed Plate; Part No. 1 975 A; Acid Delinted Seed; Size of Cells- 15/32 x 3/16"; Two to Three Seeds per Cell	7-Tooth 7-Tooth 14-Tooth 12-Tooth 12-Tooth	12-Tooth 14-Tooth 12-Tooth 14-Tooth 7-Tooth	12-40 10-20 12-40 10-20 12-40	20" 14" 10" 8" 7"	5 Lbs. 7 Lbs. 10 Lbs. 13 Lbs. 15 Lbs.
Corn Planting Unit; 16-Cell Seed Plate; Part No. 3 214 A; Acid Delinted Seed; Size of Cells- 7/16 x 9/32"; Use Filler Ring 13 870-A; One Seed per Cell	9-Tooth 9-Tooth 14-Tooth 14-Tooth 14-Tooth	14-Tooth 7-Tooth 7-Tooth 9-Tooth 7-Tooth	12-40 12-40 12-40 10-20 10-20	18" 9" 6" 4-1/2" 3-1/2"	2 Lbs. 4 Lbs. 6 Lbs. 8 Lbs. 10 Lbs.

**Corn Planting Unit**  
(Pounds of Grain Sorghum or Small Seeds per acre-based on 40" rows)

**DISTRIBUTION TABLE**  
(Grain Sorghum, Small Seeds)

	Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio	Pounds per Acre
40-Cell Seed Plate; Part No. 3 559 A; Size of Cells - 3/16"; Use Filler Ring 3 447 AA; Use knocker 3 460 A; Large Varieties as Early Kalo, Kaffir Corn	12-Tooth 12-Tooth 12-Tooth 14-Tooth 7-Tooth	7-Tooth 9-Tooth 7-Tooth 12-Tooth 12-Tooth	10-20 10-20 12-40 12-40 12-40	5 Lbs. 4 Lbs. 3 Lbs. 2 Lbs. 1 Lb.
40-Cell Seed Plate; Part No. 3 559 A; *Size of Cells - 7/32"; Use Filler Ring 3 447 AA; Use knocker 3 460 A; Large Varieties as Early Kalo; Small Varieties as Atlas Sargo, Kaffir Corn	12-Tooth 14-Tooth 12-Tooth 14-Tooth 12-Tooth 12-Tooth 14-Tooth 12-Tooth 7-Tooth	7-Tooth 9-Tooth 9-Tooth 7-Tooth 7-Tooth 14-Tooth 12-Tooth 14-Tooth 12-Tooth	10-20 10-20 10-20 12-40 12-40 10-20 12-40 12-40 12-40	10 Lbs. 9 Lbs. 8 Lbs. 7 Lbs. 6 Lbs. 5 Lbs. 4 Lbs. 3 Lbs. 2 Lbs.
10 40-Cell Seed Plate; Part No. 3 559 A; *Size of Cells - 1/4"; Use Filler Ring 3 447 AA; Use knocker 3 460 A; Large Varieties as Early Kalo, Kaffir Corn	14-Tooth 12-Tooth 14-Tooth 9-Tooth 14-Tooth 7-Tooth 9-Tooth 7-Tooth	12-Tooth 7-Tooth 9-Tooth 7-Tooth 12-Tooth 12-Tooth 12-Tooth 12-Tooth	10-20 12-40 12-40 12-40 12-40 10-20 12-40 12-40	10 Lbs. 9 Lbs. 8 Lbs. 7 Lbs. 6 Lbs. 5 Lbs. 4 Lbs. 3 Lbs.
40-Cell Seed Plate; Part No. 3 559 A; Size of Cells - 3/16"; Use Filler Ring 3 447 AA; Use knocker 3 460 A; Small Varieties as Atlas Sargo	14-Tooth 14-Tooth 9-Tooth 12-Tooth 9-Tooth 12-Tooth 7-Tooth	7-Tooth 9-Tooth 7-Tooth 7-Tooth 7-Tooth 14-Tooth 14-Tooth	10-20 10-20 10-20 12-40 12-40 10-20 12-40	7 Lbs. 6 Lbs. 5 Lbs. 4 Lbs. 3 Lbs. 2 Lbs. 1 Lb.
40-Cell Seed Plate; Part No. 3 559 A; *Size of Cells - 1/4"; Use Filler Ring 3 447 AA; Use knocker 3 460 A; Small Varieties as Atlas Sargo	14-Tooth 9-Tooth 7-Tooth 7-Tooth 9-Tooth 7-Tooth 7-Tooth	12-Tooth 14-Tooth 12-Tooth 14-Tooth 12-Tooth 12-Tooth 14-Tooth	12-40 10-20 10-20 10-20 12-40 12-40 12-40	10 Lbs. 9 Lbs. 8 Lbs. 7 Lbs. 6 Lbs. 5 Lbs. 4 Lbs.

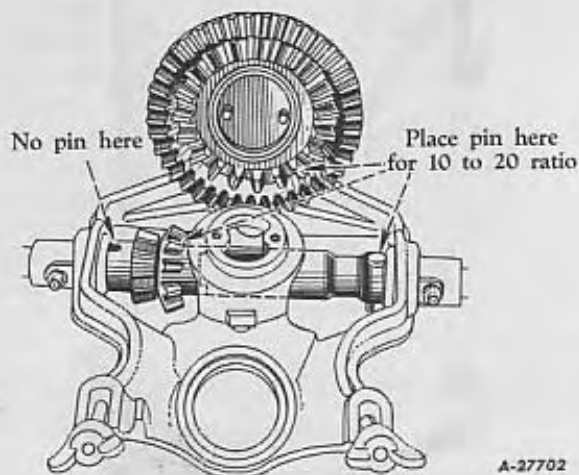
40-Cell Seed Plate Part No. 3 638 A Size of Cells-1/4 x 11/32" Four and Five Seeds per Cell	14-Tooth	7-Tooth	10-20	110 Lbs.
	12-Tooth	7-Tooth	10-20	100 Lbs.
	14-Tooth	9-Tooth	10-20	90 Lbs.
	9-Tooth	7-Tooth	10-20	70 Lbs.
	14-Tooth	12-Tooth	10-20	60 Lbs.
	14-Tooth	9-Tooth	12-40	50 Lbs.
	9-Tooth	12-Tooth	10-20	40 Lbs.
	7-Tooth	12-Tooth	10-20	30 Lbs.
	9-Tooth	14-Tooth	12-40	20 Lbs.
	7-Tooth	14-Tooth	12-40	15 Lbs.
38-Cell Seed Plate Part No. 3 231 A Size of Cells-7/16 x 3/8" Four Seeds per Cell	14-Tooth	7-Tooth	10-20	105 Lbs.
	12-Tooth	7-Tooth	10-20	95 Lbs.
	14-Tooth	9-Tooth	10-20	85 Lbs.
	12-Tooth	9-Tooth	10-20	75 Lbs.
	14-Tooth	7-Tooth	12-40	65 Lbs.
	14-Tooth	9-Tooth	12-40	50 Lbs.
	9-Tooth	12-Tooth	10-20	40 Lbs.
	7-Tooth	12-Tooth	10-20	30 Lbs.
	9-Tooth	14-Tooth	12-40	20 Lbs.
	7-Tooth	14-Tooth	12-40	15 Lbs.
29-Cell Seed Plate Part No. 1 926 A Size of Cells-5/8 x 9/32" Four Seeds per Cell	14-Tooth	7-Tooth	10-20	90 Lbs.
	12-Tooth	7-Tooth	10-20	80 Lbs.
	14-Tooth	9-Tooth	10-20	70 Lbs.
	12-Tooth	9-Tooth	10-20	60 Lbs.
	14-Tooth	12-Tooth	10-20	50 Lbs.
	14-Tooth	9-Tooth	12-40	40 Lbs.
	14-Tooth	12-Tooth	12-40	30 Lbs.
	9-Tooth	12-Tooth	12-40	20 Lbs.
	7-Tooth	12-Tooth	12-40	15 Lbs.
29-Cell Seed Plate Part No. 3 302 A Size of Cells-5/8 x 5/16" Three and Four Seeds per Cell	14-Tooth	7-Tooth	10-20	70 Lbs.
	14-Tooth	9-Tooth	10-20	60 Lbs.
	12-Tooth	9-Tooth	10-20	50 Lbs.
	12-Tooth	14-Tooth	10-20	40 Lbs.
	12-Tooth	9-Tooth	12-40	30 Lbs.
	7-Tooth	12-Tooth	10-20	20 Lbs.
	7-Tooth	14-Tooth	12-40	10 Lbs.
32-Cell Seed Plate Part No. 1 929 A Size of Cells-13/32 x 5/16" One and Two Seeds per Cell	14-Tooth	7-Tooth	10-20	25 Lbs.
	14-Tooth	9-Tooth	10-20	20 Lbs.
	14-Tooth	12-Tooth	10-20	15 Lbs.
	12-Tooth	9-Tooth	12-40	10 Lbs.

NOTE: Use knocker 3 460 A with bean plates having small cells or closed cells.  
Use either knocker 3 460 A or knocker 1 118 AB with plates having larger cells which are open to the outside diameter.



## COMBINATION HOPPER - Continued

### Hopper Gear Ratio - Continued



Illust. 7

To use inner pinion and inner gear, 10 to 20 ratio, for larger quantities or closer drilling distances, put the pin in driving sleeve to drive the 10-tooth pinion as shown in *Illust. 7*.

Three types of hopper bottoms are available in the combination hoppers.

**COTTON BOTTOM** for planting the various types of cotton seed.

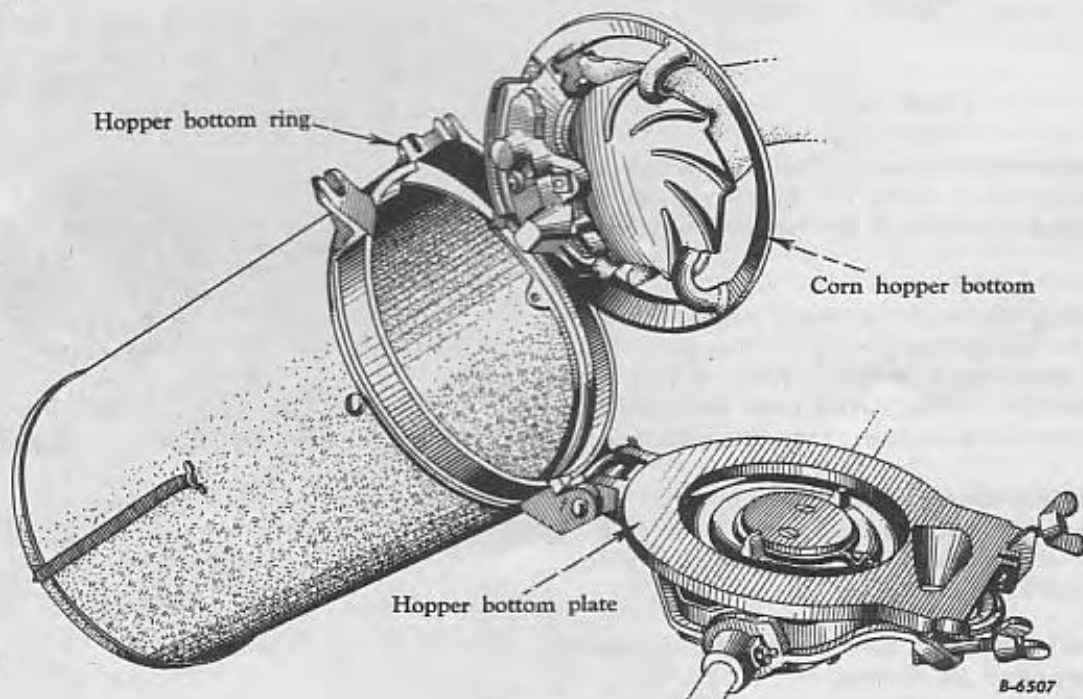
**PEANUT BOTTOM** for planting the various types of peanuts.

**CORN BOTTOM** for planting corn, beans, peas, acid delinted cotton and a large variety of other seeds ranging from large lima beans to tomato seeds.

All three of these bottoms, cotton, peanut or corn, are interchangeable; just loosen the thumb nuts and tilt the hopper back, unlatch and turn back the hopper bottom plate, lift out the bottom and put in the bottom desired. See *Illust. 8*.

The seed plates and filler rings are changed in a similar manner. See *Illust. 13*.

These bottoms are described in detail on the following pages.



Illust. 8  
Changing hopper bottoms.

16-Cell Seed Plate; Part No. 1 901 A; Size of Cells - 1/4"; Use Filler Ring 13 870 A; Use knocker 3 460 A; Large Varieties as Early Kalo, Kaffir Corn	14-Tooth	9-Tooth	10-20	10 Lbs.
	12-Tooth	9-Tooth	10-20	9 Lbs.
	14-Tooth	7-Tooth	12-40	8 Lbs.
	12-Tooth	7-Tooth	12-40	7 Lbs.
	14-Tooth	9-Tooth	12-40	6 Lbs.
	9-Tooth	12-Tooth	10-20	5 Lbs.
	9-Tooth	14-Tooth	10-20	4 Lbs.
	9-Tooth	12-Tooth	12-40	3 Lbs.
20-Cell Seed Plate; Part No. 1 967 A; Size of Cells - 5/32"; Use Filler Ring 13 870 A; Use knocker 3 460 A; Large Varieties as Early Kalo, Kaffir Corn	7-Tooth	14-Tooth	12-40	2 Lbs.
	14-Tooth	7-Tooth	10-20	8 Lbs.
	12-Tooth	7-Tooth	10-20	7 Lbs.
	14-Tooth	9-Tooth	10-20	6 Lbs.
	9-Tooth	7-Tooth	10-20	5 Lbs.
	12-Tooth	7-Tooth	12-40	4 Lbs.
	9-Tooth	12-Tooth	10-20	3 Lbs.
	7-Tooth	14-Tooth	10-20	2 Lbs.
32-Cell Seed Plate; Part No. 3 168 A; Size of Cells - 1/4 x 7/16"; Use Filler Ring 3 167 AB; Use knocker 1 223 AA; Large Varieties as Early Kalo, Kaffir Corn	7-Tooth	14-Tooth	12-40	1 Lb.
	14-Tooth	7-Tooth	10-20	6 Lbs.
	14-Tooth	9-Tooth	10-20	5 Lbs.
	9-Tooth	7-Tooth	10-20	4 Lbs.
	12-Tooth	7-Tooth	12-40	3 Lbs.
	9-Tooth	14-Tooth	12-40	2 Lbs.
	7-Tooth	12-Tooth	12-40	1 Lb.
64-Cell Seed Plate; Part No. 3 169 A; Size of Cells - 1/4 x 7/64"; Use Filler Ring 3 167 AB; Use knocker 1 223 AA; Large Varieties as Early Kalo, Kaffir Corn	14-Tooth	7-Tooth	10-20	8 Lbs.
	12-Tooth	7-Tooth	10-20	7 Lbs.
	14-Tooth	9-Tooth	10-20	6 Lbs.
	14-Tooth	7-Tooth	12-40	5 Lbs.
	12-Tooth	7-Tooth	12-40	4 Lbs.
	9-Tooth	12-Tooth	10-20	3 Lbs.
	7-Tooth	14-Tooth	10-20	2 Lbs.
	7-Tooth	14-Tooth	12-40	1 Lb.
24-Cell Seed Plate; Part No. 3 109 A; Size of Cells - 1/4 x 1/8"; Use Filler Ring 1 902 AA; Use knocker 3 460 A; Large Varieties as Early Kalo, Kaffir Corn	12-Tooth	7-Tooth	10-20	3 Lbs.
	14-Tooth	12-Tooth	10-20	2 Lbs.
	7-Tooth	12-Tooth	10-20	1 Lb.

\* Cells must be reamed to obtain the size specified.

**DISTRIBUTION TABLE**  
(Corn Planting)

**16-Cell Seed Plates**  
(Populations per acre-based on 40" rows)

Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio	Inches Apart in Row	Population in Grains per Acre
7-Tooth	14-Tooth	12-40	24"	6,534
7-Tooth	12-Tooth	12-40	20"	7,340
9-Tooth	14-Tooth	12-40	18"	8,712
9-Tooth	12-Tooth	12-40	16"	9,800
7-Tooth	14-Tooth	10-20	14"	11,200
7-Tooth	12-Tooth	10-20	12"	13,068
14-Tooth	12-Tooth	12-40	10"	15,680
12-Tooth	14-Tooth	10-20	8"	19,600
14-Tooth	7-Tooth	12-40	6"	26,136
12-Tooth	7-Tooth	10-20	4"	39,200

**RANGE OF DISTRIBUTION AND PLANTING  
DISTANCES**

The foregoing tables show approximate spacings in the row and pounds per acre which are to be used as a basis for determining plant population and the amount of seed required to plant the acreage at hand. These tables are based on 40" rows but they are subject to many variations; such as, tractor tire size, wheel slippage and the grading of the seed.

Spacings in the row and the quantity of seed used may be varied as shown in the tables by the four interchangeable sprockets used on the countershaft (see "A", *Illust. 36*) and on the feed shaft (see "B", *Illust. 36*) and by the hopper gear ratio (see *Illusts. 6 and 7*).

It should be understood that as the seed plate turns faster, the planting distance decreases and the quantity of seed put down increases. Conversely a slower seed plate increases the planting distance and decreases the quantity of seed put down.

When the row widths to be planted are other than 40", allow for the difference when calculating pounds per acre or plant population per acre.

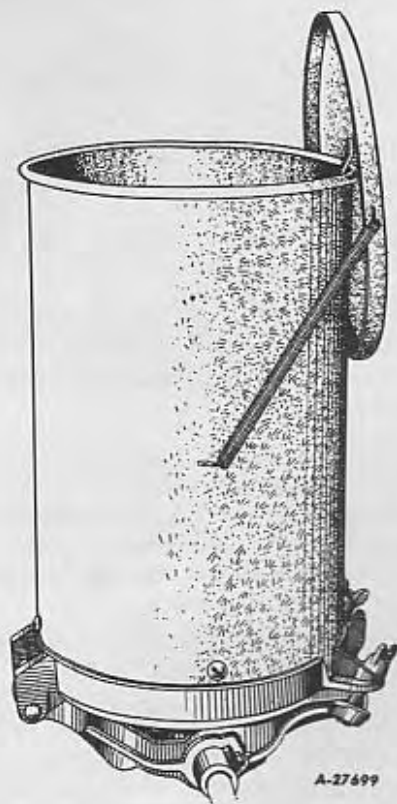
42" rows deduct 5%  
38" rows add 5%  
36" rows add 10%  
34" rows add 15%  
32" rows add 20%

Spacings in the row and pounds per acre, other than those shown in the tables, are sometimes possible to obtain. These are not all shown because of space limitations and in some instances because it would exceed the practical limits. Because it may sometimes be desirable to slightly increase or decrease the quantity or planting distance, the complete range of seed plate speeds is shown below. The table begins at the top with the sprocket and gear ratio which gives the closest possible planting distance and the maximum pounds per acre and proceeds progressively until maximum spread in the row and minimum pounds per acre are attained.

Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio	Sprocket on Countershaft	Sprocket on Feed Shaft	Hopper Gear Ratio
14-Tooth	7-Tooth	10-20	9-Tooth	12-Tooth	10-20
12-Tooth	7-Tooth	10-20	14-Tooth	12-Tooth	12-40
14-Tooth	9-Tooth	10-20	9-Tooth	14-Tooth	10-20
12-Tooth	9-Tooth	10-20	7-Tooth	12-Tooth	10-20
9-Tooth	7-Tooth	10-20	12-Tooth	14-Tooth	12-40
14-Tooth	7-Tooth	12-40	7-Tooth	14-Tooth	10-20
14-Tooth	12-Tooth	10-20	7-Tooth	9-Tooth	12-40
12-Tooth	7-Tooth	12-40	9-Tooth	12-Tooth	12-40
14-Tooth	9-Tooth	12-40	9-Tooth	14-Tooth	12-40
12-Tooth	14-Tooth	10-20	7-Tooth	12-Tooth	12-40
12-Tooth	9-Tooth	12-40	7-Tooth	14-Tooth	12-40
9-Tooth	7-Tooth	12-40			



## COMBINATION HOPPER



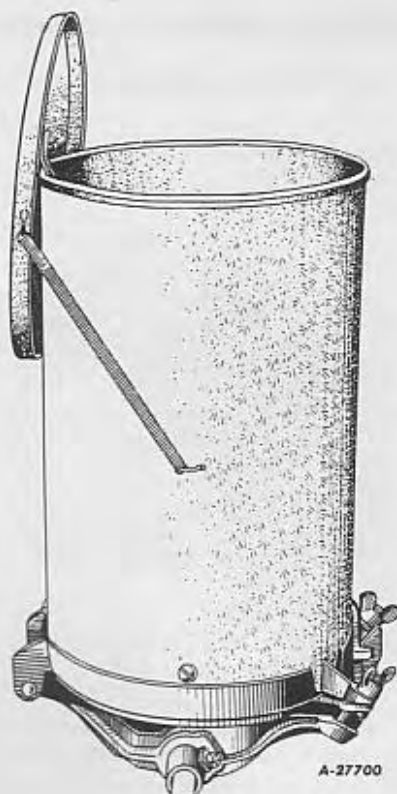
Illustr. 4

These hoppers are assembled at the factory with the monogram side of the hopper away from the hinged portion of the hopper bottom ring.

By removing the four screws, which secure the hoppers to the bottom ring the hoppers may be turned on the ring  $1/4$  turn ( $90^\circ$ ) or  $1/2$  turn ( $180^\circ$ ), so that the monograms may be seen more clearly when assembled on the planter.

The lids are assembled on the hoppers so that when they are opened they rest on a clip on the side away from the hinged portion of the hopper as shown in Illustr. 4.

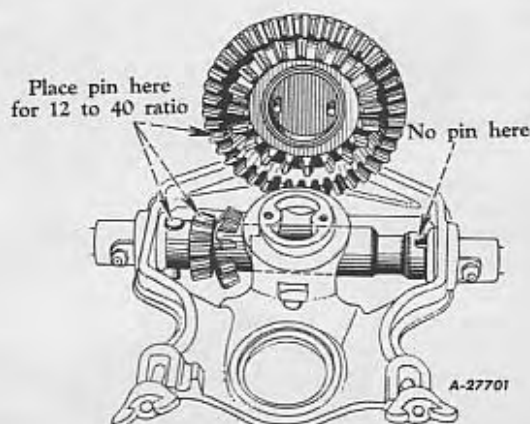
To assemble the lids to open on the opposite side of the hoppers as shown in Illustr. 5, remove the springs and turn the lids  $1/2$  turn ( $180^\circ$ ), and replace the springs.



Illustr. 5

### Hopper Gear Ratio

To use outer pinion and outer gear, 12 to 40 ratio, for smaller quantities or greater drilling distances, put the pin in the 12-tooth pinion as shown in Illustr. 6.



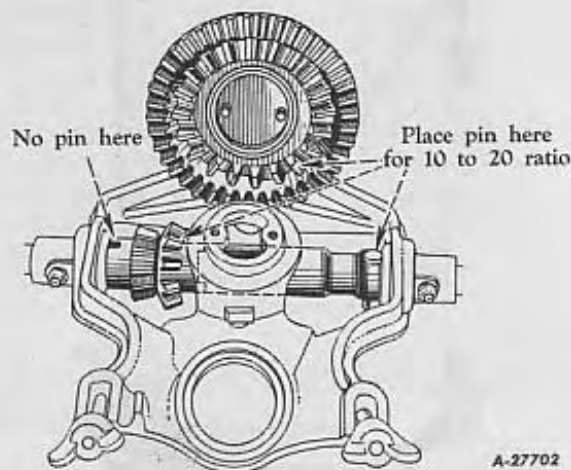
Illustr. 6

**CAUTION:** Do not use a pin in both the 12-tooth pinion and the driving sleeve for the 12-tooth pinion at the same time, as this will lock the drive and cause damage of the drive parts.

For further changes in the quantity and drilling distances, see charts on pages 6 to 12.

## COMBINATION HOPPER - Continued

### Hopper Gear Ratio - Continued



Illust. 7

To use inner pinion and inner gear, 10 to 20 ratio, for larger quantities or closer drilling distances, put the pin in driving sleeve to drive the 10-tooth pinion as shown in *Illust. 7*.

Three types of hopper bottoms are available in the combination hoppers.

**COTTON BOTTOM** for planting the various types of cotton seed.

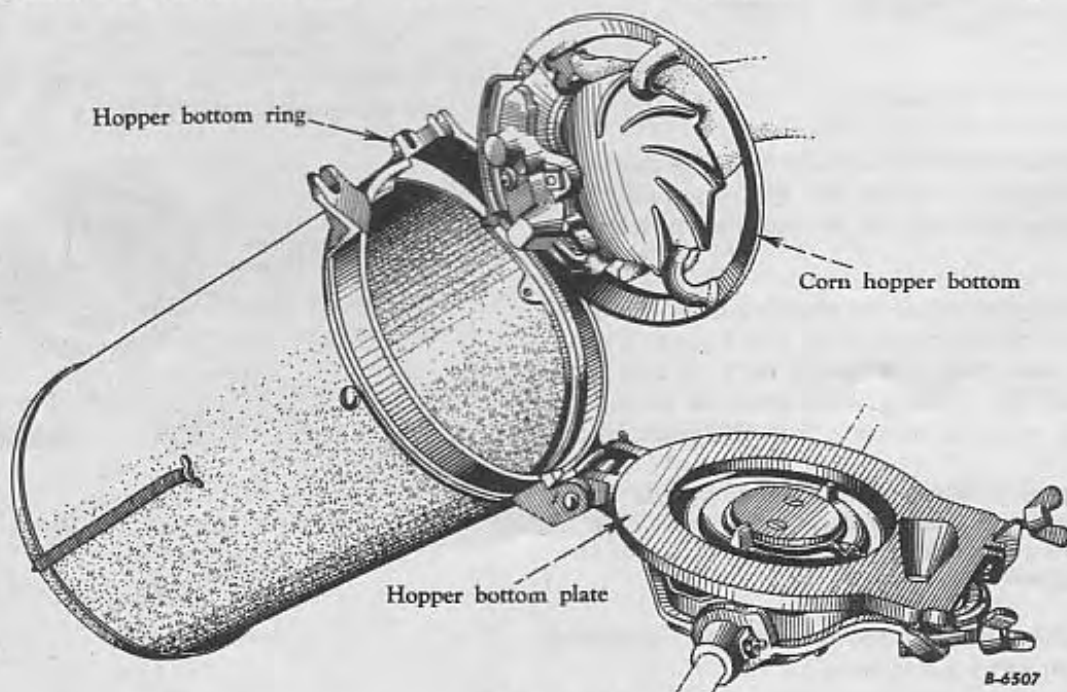
**PEANUT BOTTOM** for planting the various types of peanuts.

**CORN BOTTOM** for planting corn, beans, peas, acid delinted cotton and a large variety of other seeds ranging from large lima beans to tomato seeds.

All three of these bottoms, cotton, peanut or corn, are interchangeable; just loosen the thumb nuts and tilt the hopper back, unlatch and turn back the hopper bottom plate, lift out the bottom and put in the bottom desired. See *Illust. 8*.

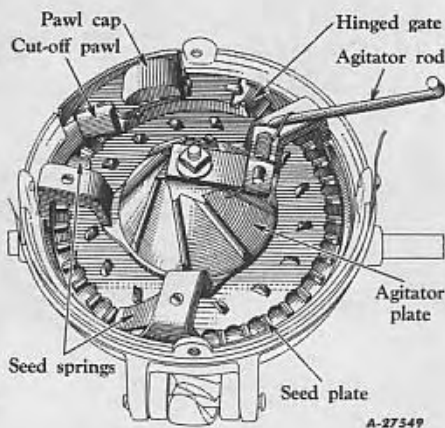
The seed plates and filler rings are changed in a similar manner. See *Illust. 13*.

These bottoms are described in detail on the following pages.



Illust. 8  
Changing hopper bottoms.

**COMBINATION HOPPER - Continued**  
**Cotton Planting Equipment**



**Illustr. 9**  
 Combination hopper cut away  
 to show cotton planting equipment.

Cotton planting equipment includes two seed plates:

Seed plate (621 717 R2) 38 large cells,  
 for gin-run cotton seed.

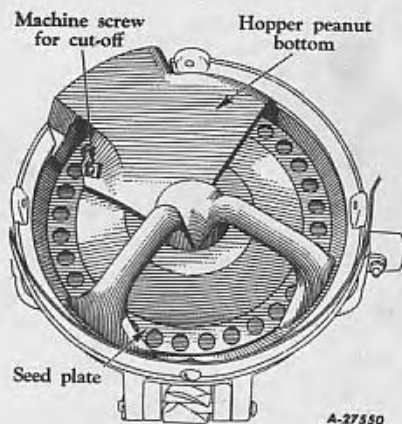
Seed plate (621 719 R2) 42 small cells,  
 for ginned, reginned, and close machine  
 delinted cotton seed.

Corn planting equipment is used when plant-  
 ing acid delinted cotton seed. Two seed  
 plates are furnished but the plates wanted  
 must be specified when ordering.

This equipment has flat springs to aid in  
 forcing the seed into the cells in the seed  
 plate just ahead of an angling cut-off. A heavy  
 knocker over the discharge opening is provided  
 for urging the seed from the cells. A rod-type  
 spring-mounted agitator is provided to agitate  
 the seed directly above the seed plate. The  
 cup shaped agitator plate is designed with  
 slanting ribs and the top of the seed plate with  
 slanting knobs to agitate and help the seed into  
 the cells of the seed plate to give uniform drop.

**IMPORTANT:** Grease daily, the agitator drive  
 in the hopper bottom. A lubrication fitting  
 for this purpose will be found under the hopper  
 bottom.

**COMBINATION HOPPER - Continued**  
**Peanut Planting Equipment**

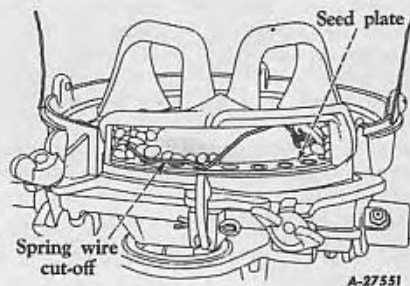


**Illustr. 10**  
 Combination hopper cut away  
 to show peanut planting equipment.

Peanut planting equipment includes two  
 seed plates and a filler ring:

Seed plate (621 731 R2) (16 large cells)  
 for Spanish peanuts in the shell.

Seed plate (621 732 R2) (32 small cells)  
 with a filler ring (621 733 R2), for shelled  
 peanuts.



**Illustr. 11**  
 Peanut bottom cut away  
 to show cut-off.

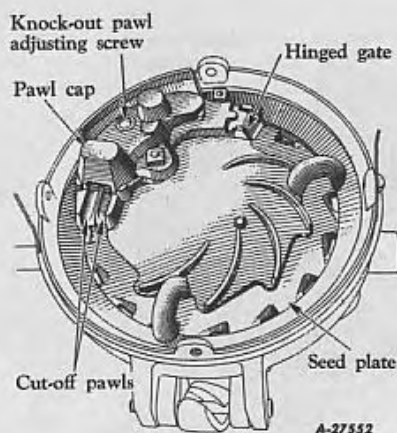
A spring wire cut-off is mounted under the  
 housing over the discharge opening to prevent  
 excessive seed from being discharged from the  
 hopper. This cut-off also acts as a knocker to  
 urge the seed from the cells.

**IMPORTANT:** The spring wire cut-off (see  
 Illustr. 11) must be adjusted so that it will  
 line up with the seed cells, and when the  
 knocker portion of the cut-off is in a cell, the  
 tail portion of the cut-off will lay on the seed  
 plate, without any tension on the cut-off.



## COMBINATION HOPPER - Continued

### Corn Planting Equipment



Illustr. 12  
Combination hopper cut away  
to show corn planting equipment.

Corn planting equipment includes a choice of two seed plates (with filler rings, if required).

For description, list and illustrations of these seed plates and filler rings, see pages 19 to 25.

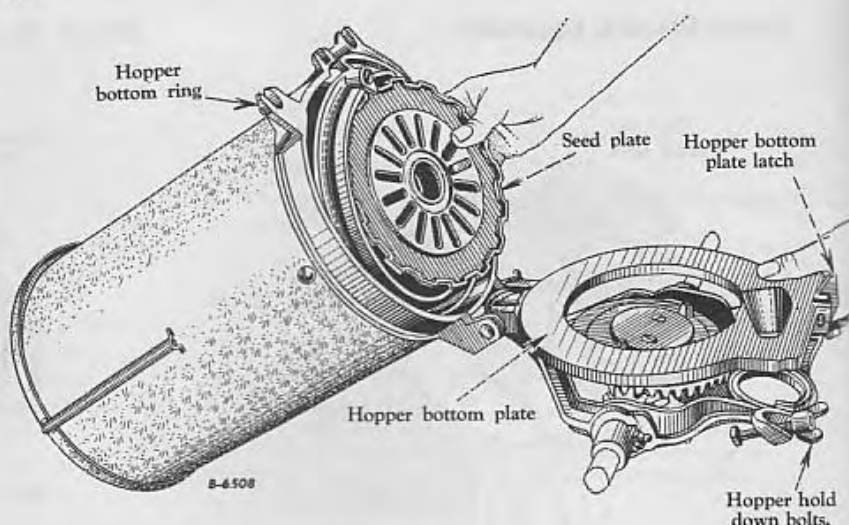
The seed plates used for a wide variety of crops are of three basic types, edge drop, flat drop and full hill drop and are available with assorted cell sizes and cell spacings. This feature enables the operator to plant any size and shape of hybrid seed corn, acid delinted cotton seed and a wide variety of other seed ranging from tomato seed to large lima beans.

The double cut-off pawls make it possible to use the three types of seed plates; edge drop, flat drop and hill drop in the same hopper. They allow only the seed in the cell to pass over the boot opening.

The knock-out pawl in the corn planting equipment can be adjusted to line up with and automatically clear each cell of seed as it passes over the boot opening.

To adjust the knock-out pawl to work with plates having cells in the edge of the plates, or with plates having cells set in from the edge, loosen the machine screw on the cut-off and knocker cap, then move the knock-out pawl to the desired position. Tighten the screw while holding the knocker in position. Rotate the seed plate to be sure the knock-out pawl works in the seed plate cells. See Illustr. 15, 16, 17 and 18.

All seed plates (with filler rings, if required) on pages 19 to 22, are interchangeable in the corn planting equipment.

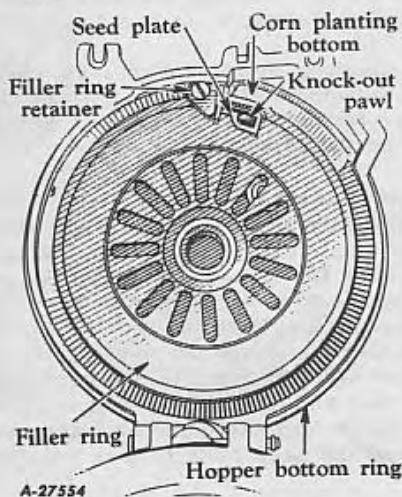


Illustr. 13  
Changing seed plates.

To change seed plates, first loosen the thumb nuts on the hopper hold-down bolts and tilt the hopper back. Then unlatch and turn back the hopper bottom plate, lift out the seed plate, and put in the desired seed plate (with filler ring, if required).

Do not unlatch hopper bottom plate until hopper is tipped back or the seed will spill.

When the hopper is full of seed, do not tilt the hopper back without supporting the lid. The lid springs are not strong enough to support a hopper full of seed.

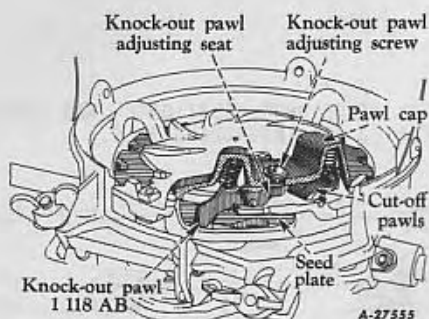


Illustr. 14  
Filler ring retainer.

The corn planting equipment has a filler ring retainer, secured to the hopper bottom with a machine screw. This retainer prevents the filler ring (when used) from turning when the planter is in motion.

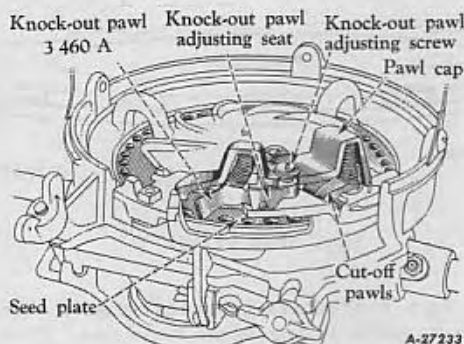
# COMBINATION HOPPER - Continued

## Corn Planting Equipment - Continued

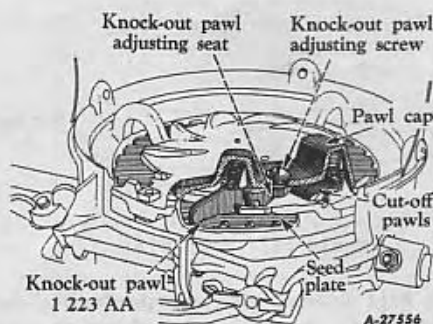


Illustr. 15  
Cut away to show  
1 118 AB knock-out pawl.

Corn planting equipment is regularly equipped with 1 118 AB knock-out pawls assembled in place in the hopper bottom. They are for use with seed plates having cells open at the edge for planting corn or other large varieties of seed.



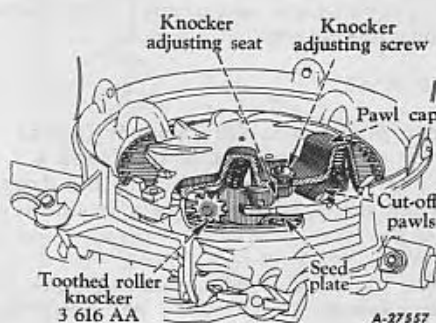
Illustr. 16  
Cut away to show  
3 460 A knock-out pawl.



Illustr. 17  
Cut away to show  
1 223 AA knock-out pawl.

Knock-out pawl (3 460 A) is included with the hopper bottom. It is used to replace 1 118 AB knock-out pawl when using seed plates having cells set in from the edge of the plate or plates to plant the smaller varieties of seeds such as maize, kaffir corn and sargo.

Knock-out pawl (1 223 AA) is available on special order for use with plates (3 168 A and 3 169 A) having small cells at the edge of plate to plant broom corn.



Illustr. 18  
Cut away to show  
toothed roller knocker.

Rotary knocker (arm 43 169 AA and roller knocker 3 616 A) is available on special order for use with plates having 72 to 82 cells, 1/8" and up in diameter for planting segmented beet seed, etc.

To change the knock-out pawls in the corn hopper bottom, it is well to remove the bottom from the hopper, take out the bolt holding the pawl cap and replace the knocker with the knocker desired. Make sure all the springs for both the cut-offs and knocker are in their proper position. Then replace the bolt and tighten it securely.

Before placing the bottom back in the hopper, put the seed plate in the bottom. Rotate the plate to make sure that the cut-off and knocker works freely and that the point of the knocker enters the cells of the plate. Adjust the knocker seat so the knocker will line up with the cells in the plate.

## COMBINATION HOPPER - Continued

### Corn Planting Equipment - Continued

It is a good idea to have your seed tested to select the proper seed plate, but do not wait until the last minute, do it now.

Your dealer is equipped to test your seed, and usually has a good supply of seed plates to fit all seeds. But he may be temporarily out of the proper seed plate to fit your seed. Give him a break, get your seed plates early.

To secure an accurate drop, the planter speed, graded seed and proper seed plate must be considered.

#### PLANTER SPEED

When planting at slow speeds (horse speed or tractor speeds of less than 4 miles per hour) the accuracy of the drop is best when the seed fits closely in the seed plate cell.

When planting at fast speeds (higher tractor speeds, 4 to 5 miles per hour) the accuracy of the drop is best when the seed fits loosely in the seed plate cell.

#### GRADED SEED

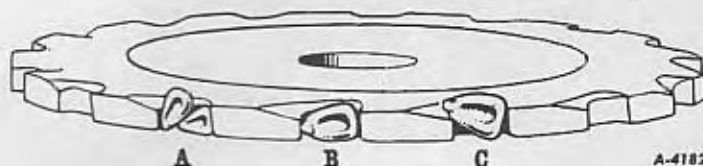
Graded seed is best when planting at either the slower or higher speeds. Poorly graded seed can be handled fairly well at slower speeds, but is apt to give very inaccurate results at higher speeds. Dump the seed cans occasionally, particularly if the corn is poorly graded, to eliminate the gathering of seeds larger than the cells in the seed plate, at the bottom of the can.

#### PROPER SEED PLATE

The correct selection of the proper seed plate to match the planting speed is very important, as this most frequently is the reason for inaccurate drops.

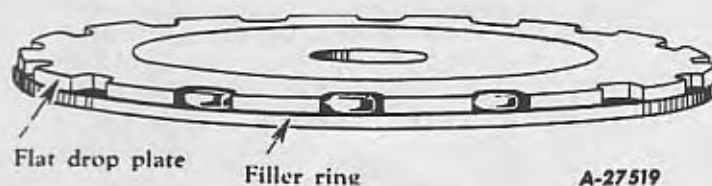
If a test is run by your seed company to select the proper seed plate, tell them it is important that the seed plate testing device used, should be operated at approximately the same speed that the planter is to be operated.

NOTE: EDGE DROP, FLAT DROP, AND WHOLE HILL DROP PLATES ARE INTERCHANGEABLE.



Illustr. 19  
Edge drop plate.

Best results can be obtained only when the seed fits the cells in the plate like at "B". Imperfect chambering of seed, as at "A" and "C", results in irregular cropping. See list of seed plates.



Illustr. 20  
Flat drop plate.

Flat Drop Plates are interchangeable with edge drop plates in the same seed can. Flat drop plates require a filler ring in most cases. See list of seed plates and dropping distances.

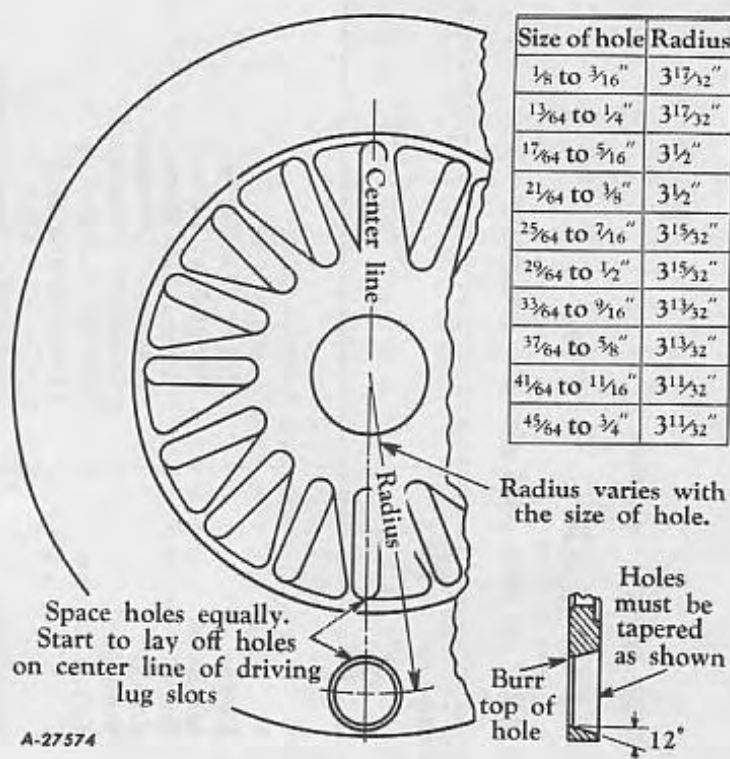


Illustr. 21  
Whole hill drop plate.

Whole Hill Drop Plates are preferred in some cases and can be used without changing the planter in any way. See list of seed plates.



Blank seed plates have various thicknesses. See list of seed plates on pages 19 to 22. These plates are drilled as ordered or they may be drilled by the purchaser. When drilling these plates, the chart and drawings must be followed. See *Illust. 22*.



Illust. 22  
Drilling blank seed plate.

### Special Hill Drop Plates

A filler ring is required for use with all seed plates less than  $\frac{5}{16}$ " thick. See below.

Part Number of Seed Plate	No. of Cells	Size of Cells	Comparative Size of Cells	Typical Seed	Seeds per Cell
1 892 A	8	$19/32$ " dia.	Medium	Corn	2 and 3
1 893 A	8	$21/32$ " dia.	Large	Corn	2 and 3
3 082 A	8	$17/32$ " dia.	Small	Corn	2 and 3
3 083 A	8	$15/32$ " dia.	Special Small	Corn	2 and 3
3 328 A	8	$7/16$ " dia.	Special Small	Very Small Hybrid Corn	2 and 3
§ 3 445 A	8	$1/4$ " dia.	Large	Tomato Seed	.....
§ 3 446 A	8	$7/32$ " dia.	Medium	Tomato Seed	.....

§ Special filler ring (3 447 AA) and special knocker (3 460 A) used with these plates.

For table of planting distances, see page 6.

# Seed Plates (Flat Drop)

All flat drop plates listed below may be used for drilling.

A tiller ring is required for use with all flat drop seed plates. See below.

Part Number of Seed Plate	No. of Cells	Size of Cells	Comparative Size of Cells	Typical Seed
1 852 AA	Blank plate, 3/16" thick (drilled as ordered).			
*3 099 A	Blank plate, 9/64" thick (drilled as ordered).			
+3 544 A	Blank plate, 1/8" thick (drilled as ordered).			
1 964 A	8	11/16 x 1/2"	Large	Short Flat Corn.
1 965 A	8	5/8 x 1/2"	Medium	Short Flat Corn.
1 966 A	8	9/16" dia.	Small	Round Flat Corn.
1 968 A	8	13/32 x 1/4"	Small	Soybeans (1 bean).
1 969 A	8	3/4 x 5/16"	Medium	Soybeans (2 beans).
3 075 A	8	3/4" dia.	Extra Large	Round Flat Corn.
3 076 A	8	Twin Cells each 11/32" dia.	.....	Peas (Memphis)
3 085 A	8	3/8 x 9/32"	Medium	Soybeans, Peas, Beets.
3 086 A	12	3/8 x 9/32"	Medium	Soybeans, Peas, Beets.
3 351 AA	12	7/16" dia.	Small	Corn (Flat Rd. Hybrid).
1 898 A	14	9/16" dia.	Small	Round Flat Corn.
1 899 A	14	3/4" dia.	Large	Round Flat Corn.
1 794 A	16	5/8 x 5/16"	Small	Corn, Hybrid Corn.
1 795 A	16	5/8 x 13/32" x 3/8"	Medium	Corn.
1 796 A	16	11/16 x 7/16" x 13/32"	Large	Corn.
1 853 A	16	3/8 x 7/32"	Medium	Popcorn.
1 854 AA	16	3/8 x 9/32"	Medium	Beet and Bean.
1 855 A	16	1/2 x 3/8"	Small	Short Flat Corn, Hybrid Corn.
1 856 A	16	19/32 x 7/16"	Medium	Short Flat Corn.
1 857 A	16	11/16 x 1/2"	Large	Short Flat Corn.
1 901 A	16	1/4" dia.	Medium	Kaffir and Small Seeds.
1 903 A	16	1/2 x 5/32"	Medium	Melon and Cucumber Seeds.
1 927 A	16	3/4" dia.	Extra Large	Round Flat Corn.
1 928 A	16	5/8" dia.	Medium	Round Flat Corn.
1 938 A	16	17/32" dia.	Small	Round Flat Corn.
§3 001 A	16	9/16 x 3/16"	Small	Country Gentleman Corn.
§3 002 A	16	5/8 x 7/32"	Large	Country Gentleman Corn.
3 050 A	16	21/32 x 5/16"	Small	Horse Tooth Corn.

3 051 A	16	23/32 x 11/32"	Medium	Horse Tooth Corn.
3 052 A	16	13/16 x 3/8"	Large	Horse Tooth Corn.
3 143 A	16	5/8 x 5/16"	.....	Sunflower.
3 214 A	16	7/16 x 9/32"	.....	Blackeye Beans, Acid Delinted Cotton.
3 225 A	16	5/8 x 15/64"	Large	Country Gentleman Corn.
3 266 A	16	15/32 x 3/8"	.....	Corn, Pea, Bean and Hybrid Corn.
3 303 A	16	7/16 x 7/32"	Extra Small	Hybrid Corn, (Small Tip Kernel).
3 321 A	16	17/32 x 9/32"	Medium	Hybrid Corn (Thin Flat).
3 329 A	16	7/16 x 11/32"	Special	
			Small	Round Flat Corn, Hybrid Corn.
3 330 AA	16	1/2 x 7/16"	Small	Round Flat Corn, Hybrid Corn.
3 350 AA	16	7/16" dia.	Small	Corn (Flat Rd. Hybrid).
3 365 A	16	13/32" dia.	Extra Small	Corn (Flat Rd. Hybrid).
3 419 A	16	37/64 x 5/16"	Small	Corn (Flat Hybrid).
1 967 A	20	5/32" dia.	.....	Sorghum.
1 930 A	24	17/32 x 1/4"	.....	Beet Seed.
1 931 A	24	19/32 x 5/16"	.....	Bean.
3 087 A	24	19/32 x 7/16"	Medium	Short Flat Corn.
3 088 A	24	11/16 x 1/2"	Large	Short Flat Corn.
3 109 A	24	1/4 x 1/8"	Small	Kaffir Corn.
1 929 A	32	13/32 x 5/16"	Medium	Pea, Bean, Acid Delinted Cotton.
= 3 168 A	32	1/4 x 7/64"	.....	Broom Corn.
= 3 169 A	64	1/4 x 7/64"	.....	Broom Corn.
+ 3 559 A	40	3/16" dia.	Small	Sorghum.
**620 081 R1	82	5/32" dia.	.....	Segmented Beet Seed.
** 3 615 A	82	3/16" dia.	.....	Segmented Beet Seed.
** 3 637 A	82	11/64" dia.	.....	Segmented Beet Seed.
** 3 639 A	82	11/64" dia.	.....	Segmented Beet Seed.
**621 972 R1	82	12.5/64" dia.	.....	Segmented Beet Seed.

§ Special Filler Ring (1 902 AA - 5/32" thick) used with these plates.

§ Special Filler Ring (3 000 A - 11/64" thick) used with these plates.

= Special Filler Ring (3 167 AB - 13/64" thick) and Special Knocker (1 223 AA) used with these plates.

+ Special Filler Ring (3 447 AA - 13/64" thick) and Special Knocker (3 460 A) used with these plates.

All other flat drop plates take regular Filler Ring (13 870 A - 1/8" thick).

\* Special Filler Ring (43 288 A) and Special Knocker (3 460 A) used with this plate, when cells are over 9/32" diameter.

\* Special Filler Ring (621 978 R11) and Special Knocker (3 460 A) used with this plate, when cells are 9/32" diameter or smaller.

\* Special Rotary Knocker (Arm 43 169 AA and Knocker 3 616 AA) may be used when 72 to 82 cells, 1/8" and up in diameter, are drilled in this plate.

\*\* Special Filler Ring, cp. (621 978 R11), special Rotary Knocker (Arm 43 169 AA and Knocker 3 616 AA) and Special cut-off pawls (620 152 R91) (pair of inner and outer) used with these plates.

For table of planting distances, see page 6.

For illustrations of seed plates and filler rings, see pages 23 to 25.



COMBINATION HOPPER - Continued  
Corn Planting Equipment - Continued

Seed Plates (Edge Drop)

All edge drop plates are 5/16" thick except as noted. No filler ring is used with these plates.

Part Number of Seed Plate	No. of Cells	Size of Cells	Comparative Size of Cells	Typical Seed
3 045 AA		Blank plate - 5/16" thick (drilled as ordered).		
§ 621 050 R1		Blank plate - 1/4" thick (drilled as ordered).		
1 961 A	8	9/16 x 3/16"	Small	Corn.
1 962 A	8	5/8 x 3/16"	Medium	Corn.
1 963 A	8	11/16 x 13/64"	Large	Corn.
3 215 A	8	15/16 x 21/32"	.....	Lima Beans.
3 229 A	8	1-1/4 x 13/16"	Extra Large	Mexican Beans.
3 353 A	8	1/2 x 1/4"	Small	Corn (Thick).
1 972 A	12	1 x 11/16"	Large	Mexican Beans.
3 091 A	12	5/8 x 3/16"	Medium	Corn.
3 092 A	12	11/16 x 13/64"	Large	Corn.
3 352 A	12	1/2 x 1/4"	Small	Corn (Thick).
1 891 A	16	7/8 x 1/2"	.....	Beans.
1 975 A	16	15/32 x 3/16"	Special Small	Corn, Hybrid Corn, Acid Delinted Cotton
1 977 A	16	9/16 x 3/16"	Small	Corn.
1 978 A	16	5/8 x 3/16"	Medium	Corn, Acid Delinted Cotton.
1 979 A	16	11/16 x 13/64"	Large	Corn.
3 042 A	16	1/2 x 3/8"	.....	Nova Scotia Marrow Beans, Hybrid Corn.
3 056 A	16	25/32 x 7/32"	Extra Large	Corn.
3 058 A	16	11/16 x 1/2"	Medium	Kidney Beans.
3 059 A	16	13/16 x 1/4"	Large	Kidney Beans.
3 104 A	16	33/64" dia.	.....	Beans.
3 106 A	16	21/32" dia.	.....	Lima Beans.
3 142 A	16	3/4 x 5/8"	.....	Kidney Beans.
3 171 A	16	9/16 x 11/64"	Small Narrow	Corn.
3 172 A	16	5/8 x 11/64"	Medium Narrow	Corn.
3 236 A	16	7/16 x 3/16"	Small	Sweet Corn.
3 237 AA	16	1/2 x 1/4"	Medium	Sweet Corn.
§ 3 313 A	16	15/32 x 9/32"	Medium	Hybrid Sweet Corn (Thick), Acid Delinted Cotton.
§ 3 314 A	16	7/16 x 1/4"	Small	Hybrid Sweet Corn (Thick), Acid Delinted Cotton.
3 324 A	16	15/32 x 5/16"	Medium	Hybrid Corn (Spherical Butts).
§ 3 331 A	16	15/32 x 3/8"	Medium	Hybrid Corn (Round Butts).
3 354 A	16	3/4 x 3/8"	.....	Peanuts.
3 366 A	16	15/32 x 7/32"	Medium	Hybrid Corn (Short, Thick, Flat).
§ 3 367 A	16	15/32 x 11/64"	Extra Small	Hybrid Corn (Thin, Flat).
§ 3 398 A	16	15/32 x 5/16"	Medium	Hybrid Corn (Round).
§ 621 036 R1	16	15/32 x 5/16"	Small	Hybrid Corn (Long Round).
621 833 R1	16	7/16 x 3/16"	Extra Small	Hybrid Sweet Corn (Extra Small).
622 174 R1	16	9/16 x 3/16"	Special Medium	Hybrid Corn (Long Flat).
3 561 A	16	1/2 x 19/32"	Medium	Hybrid Corn (Long Round).
3 613 A	16	19/32 x 11/32"	Large	Hybrid Corn (Long Round).
3 545 A	16	9/16 x 11/64"	Small	Corn (Thin, Narrow).
3 546 A	16	33/64 x 3/16"	Extra Small	Corn (Narrow).
3 547 A	16	17/32 x 11/64"	Extra Small	Corn (Thin, Narrow).
3 355 A	20	3/4 x 3/8"	.....	Peanuts.
3 127 A	22	27/32 x 23/32"	.....	Peas.
3 043 A	24	1/2 x 3/8"	Medium	Nova Scotia Marrow Beans.
3 097 A	24	3/4 x 5/16"	Medium	Kidney Beans.
3 098 A	24	7/8 x 5/16"	Large	Kidney Beans.
3 114 AA	24	21/32 x 13/32"	Large	Marrow Beans.
1 926 A	29	5/8 x 9/32"	Medium	Ensilage.
§ 3 302 A	29	5/8 x 9/32"	.....	Beans.
§ 3 638 A	40	1/4 x 11/16"	Medium	Soybeans.
§ 3 301 A	34	5/8 x 7/16"	.....	Large Soybeans, Peas (2 seeds).
3 231 A	38	7/16 x 3/8"	.....	Peas.

§ 9/32" thick

§ 1/4" thick (see above).

For table of planting distances, see page 6.

For illustrations of seed plates and filler rings, see pages 23 to 25.

# COMBINATION HOPIER - Continued

## Corn Planting Equipment - Continued

### SEED PLATES



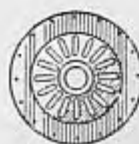
1794 A



1795 A



1796 A



1852 AA



1853 A



1854 AA



1855 A



1856 A



1857 A



1891 A



1892 A



1893 A



1898 A



1899 A



1901 A



1903 A



1926 A



1927 A



1928 A



1929 A



1930 A



1931 A



1938 A



1961 A



1962 A



1963 A



1964 A



1965 A



1966 A



1967 A



1968 A



1969 A



1972 A



1975 A



1977 A



1978 A



1979 A



3001 A



3002 A



3042 A



3043 A



3045 AA



3050 A



3051 A



3052 A



3056 A



3058 A



3059 A

## COMBINATION HOPPER - Continued

## Corn Planting Equipment - Continued

## SEED PLATES - Continued



3075A



3076A



3082A



3083A



3085A



3086A



3087A



3088A



3091A



3092A



3097A



3098A



3099A



3104A



3106A



3109A



3114AA



3127A



3142A



3143A



3168A



3169A



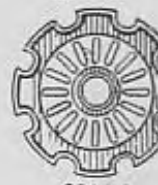
3171A



3172A



3214A



3215A



3225A



3229A



3231A



3236A



3237AA



3268A



3301A



3302A



3303A



3313A



3314A



3321A



3324A



3328A



3329A



3330AA



3331A



3360AA



3351AA



3352A



3353A



3354A



## COMBINATION HOPPER - Continued

### Corn Planting Equipment - Continued

#### SEED PLATES - Continued



3355 A



3365 A



3366 A



3367 A



3398 A



3419 A



3445 A



3446 A



3544 A



3545 A



3546 A



3547 A



3559 A



3561 A



3613 A



3637 A



3638 A



621 036 R1



621 050 R1



621 833 R1



622 174 R1

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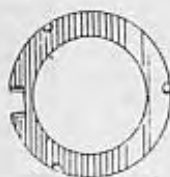
#### FILLER RINGS



1902 AA



3000 A



3167 AB



3447 AA



13870 A

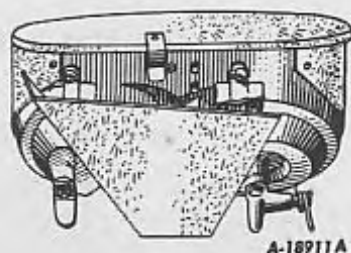


49288A



621 978 R11

# TYPE "C" DUPLEX HOPPER



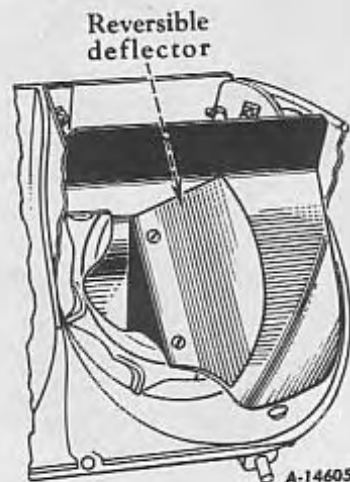
Illustr. 23

This hopper is divided into two sections to permit planting two kinds of seed at the same time such as corn and beans, either alternately or both at the same time. The same seed can be used in both sections to be planted twice as thick. When desired, it is possible to use only one section. Seed plates are available to plant almost any kind of seed with the exception of cotton.

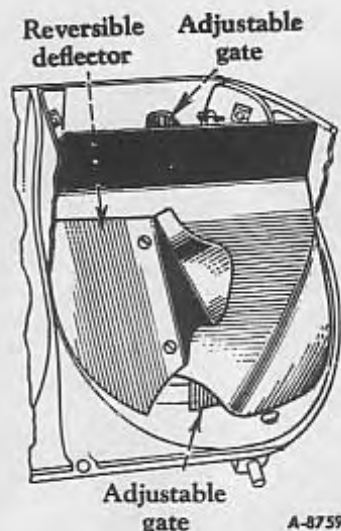
To drop seeds from both sections of the Duplex Hopper alternately, adjust the 16-tooth ring gear and seed plate so that a cell in one plate is over the discharge opening, and the discharge opening in the other plate is midway between two cells.

To drop seeds from both sections of the Duplex Hopper at the same time, adjust the 16-tooth ring gear and seed plate so the cells in both plates reach the discharge opening at the same time.

There are three driving gears furnished with this hopper, a 7-tooth, a 9-tooth and a 12-tooth. With the use of the different gears and plates with different number of seed cells, seeds can be dropped almost any distance apart in the row. The driving gears each have four driving lugs which fit into holes in the face gear on the planter and are held in place by means of a  $3/8$ " machine bolt which screws into the face gear.



Illustr. 24



Illustr. 25

The seed deflector is reversible. For planting peanuts in the shell, the reversible deflector should be placed in the position shown in *Illustr. 24*. For small seeds, place the reversible deflector in the position shown in *Illustr. 25*.

When planting alternate rows of different seeds, close and tighten the shut-off valve at the discharge opening in the section of the hopper not planting. Also close the deflector opening in this section of the hopper with the adjustable gate, thereby preventing seeds from entering the seed plate chamber and building up over the discharge opening.

The adjustable gate is also used to control the size of the deflector opening for different size seeds and for fast planting speeds, thus limiting the amount of seed entering the seed plate chamber and preventing the seeds from building up too high on the seed plate.

**NOTE:** The gate should always be wide open when the deflector is placed as shown in *Illustr. 24*.

When using both sides of the Duplex Hopper to plant seeds alternately in the row, more accurate spacing can be obtained by using the right side of the hopper for irregular shaped seeds (such as corn) and the left side of the hopper for smooth round shaped seeds (such as peas, beans, etc.)

# TYPE "C" DUPLEX HOPPER - Continued

## Seed Plates

Part Number of seed Plate	Number of Cells	Seeds per Cell	Typical Seed	Part Number of seed Plate	Number of Cells	Seeds per Cell	Typical Seed
R 7 016	4	5-7	Beans-Biloxi Soy	CPC 5 044	8	1	Corn (Cont'd.)-Small
CPB 5 151	8	1	Biloxi Soy	R 7 022	4	1	Small thin
CPB 5 017	24	1	Biloxi Soy	CPB 5 017	24	1	Crotalaria
CP 5 197	40	1	Bountiful	CPB 5 148	36	1	Cucumber
R 7 038	40	1	Bountiful	CP 5 197	40	4-5	Okra
R 7 039	40	1	Bountiful	R 7 000	8	1	Peanuts -Field, shelled
R 7 040	40	1	Bountiful	CP 5 195	12	1	Field, shelled
CP 5 194	12	1	Fordhook Lima	R 7 035	12	1	Field, shelled
R 7 041	16	1	Fordhook Lima	R 7 034	16	1	Field, shelled
CP 5 197	40	1	Giant Stringless	R 7 033	24	1	Field, shelled
CP 5 195	12	2	Henderson	CP 5 167	8	1	Field, in shell
			Bush Lima	CP 5 199	8	1	Jumbo, shelled
CP 5 178	4	1	Laredo Soy	CP 5 194	12	1	Jumbo, shelled
CPB 5 017	24	1	Laredo Soy	CPC 5 144	3	1	Spanish, shelled
CP 5 193	8	3-4	Mammoth Yellow	CPC 5 147	8	1	Spanish, shelled
			Soja	CPC 5 014	12	1	Spanish, shelled
CP 5 192	24	1	Mammoth Yellow	R 7 032	12	1	Spanish, shelled
			Soja	R 7 029	16	1	Spanish, shelled
CP 5 196	24	2	Mung Soy	R 7 031	24	1	Spanish, shelled
CPB 5 150	8	1	O-Too-Tan-Soy	CPB 5 013	8	1	Spanish, in shell
CPB 5 140	2	1	Velvet (small)	CP 5 175	12	1	Spanish, in shell
CPB 5 015	4	1	Velvet (small)	CP 5 198	18	4-5	Peas
CPB 5 149	4	1	Velvet (large)	CPB 5 016	24	1	Peas
CPB 5 132	4	1	Corn -Hickory King	CP 5 192	24	2	Peas-Austrian
CPA 5 166	8	1	Hickory King	CPB 5 151	8	1	California Blackeye
CPB 5 141	12	1	Kaffir, Sorghum, etc.	CP 5 198	18	3-4	Crowder
			Large	CP 5 198	18	3-4	Little Marvel
CPB 5 134	2	1	Large	CP 5 198	18	4-5	Thos. Laxton
CPB 5 132	4	1	Large	R 7 027	4	4	Pepper Seed
R 7 028	*	1	Large	CPB 5 141	12	1	Sorghum, Kaffir Corn, etc.
CPA 5 166	8	1	Large	R 7 027	4	4	Tomato Seed
CPB 5 135	2	1	Small	R 7 030	8	1	Tung Nuts
CPC 5 133	4	1	Small	CPB 5 016	24	5	Vetch - Hairy

\* 4 Sets of Twin Cells.

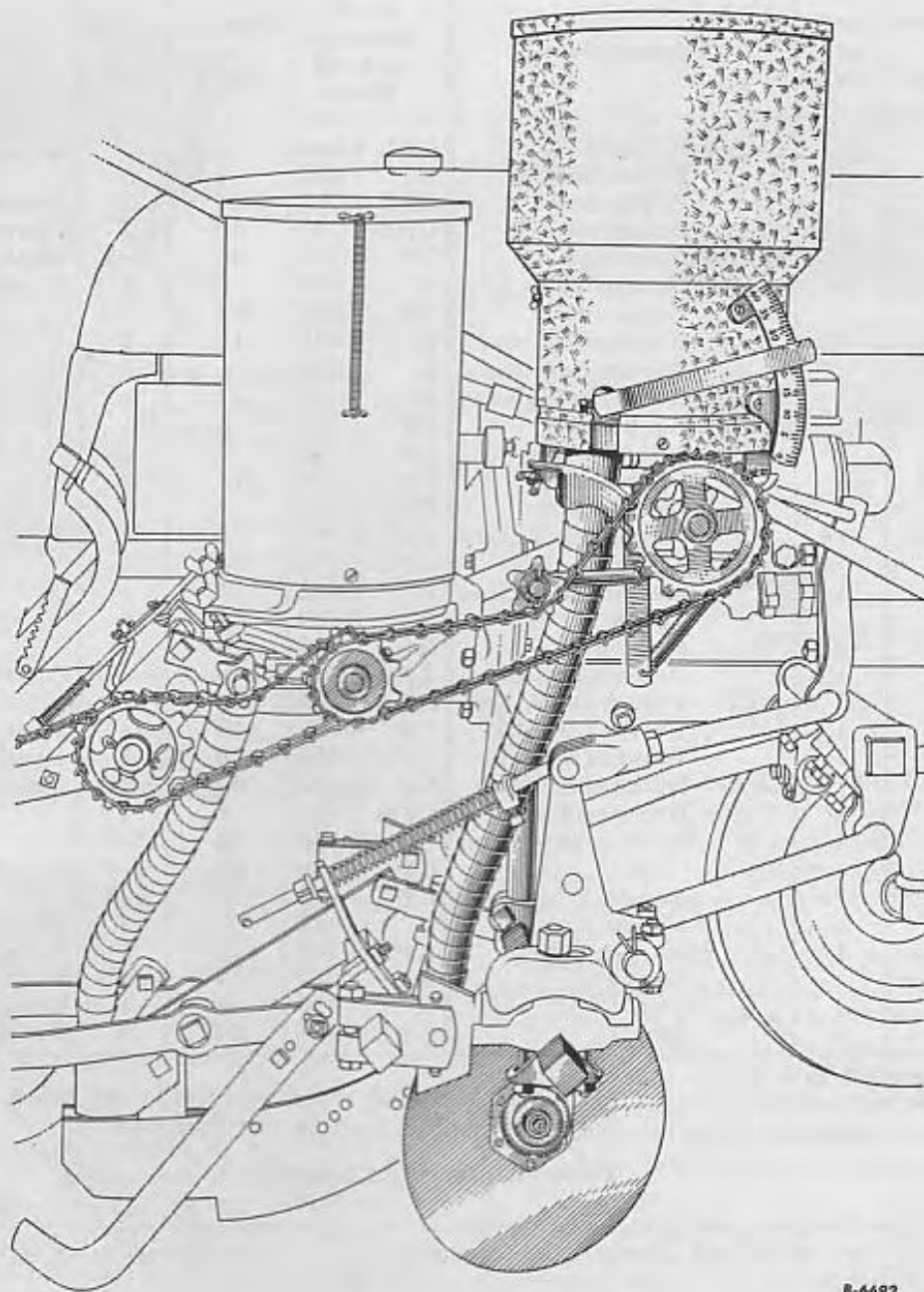
NOTE: Seeds of any variety vary in size and shape and above selections are based on average seed. Best results are obtained by selecting the plate best suited to the seed used.

Table of Planting Distances

	Using one side or both sides dropping together						Alternating, using both sides of hopper					
	Driving Gear						Driving Gear					
	Regular			Special			Regular			Special		
	12 Cog	9 Cog	7 Cog	16 Cog	10 Cog	6 Cog	12 Cog	9 Cog	7 Cog	16 Cog	10 Cog	6 Cog
2-cell plate	48"	64"	82"	36"	58"	96"	24"	32"	41"	18"	29"	48"
3-cell plate	32"	42"	55"	24"	39"	64"	16"	21"	27-1/2"	12"	19-1/2"	32"
4-cell plate	24"	32"	41"	18"	29"	48"	12"	16"	20-1/2"	9"	14-1/2"	24"
8-cell plate	12"	16"	20-1/2"	9"	14-1/2"	24"	6"	8"	10-1/4"	4-1/2"	7-1/4"	12"
12-cell plate	8"	11"	14"	6"	10"	16"	4"	5-1/2"	7"	3"	5"	8"
24-cell plate	4"	5-1/2"	7"	3"	5"	8"	2"	2-3/4"	3-1/2"	1-1/2"	2-1/2"	4"
36-cell plate	2-3/4"	3-1/2"	4-1/2"	2"	3-1/4"	5-1/2"	1-1/2"	1-3/4"	2-1/4"	1"	2"	2-3/4"
40-cell plate	2-1/2"	3"	4"	1-3/4"	2-3/4"	5"	.....	.....	.....	.....	.....	.....

The above table shows planting distances for various seed plates.





B-6692

Illust. 26  
CUB-53-A Fertilizer Unit with Disk Applicator  
(Flat Planting).

### Lubrication

Use the pressure lubricating gun furnished with the tractor and lubricate the following places twice daily when in use:

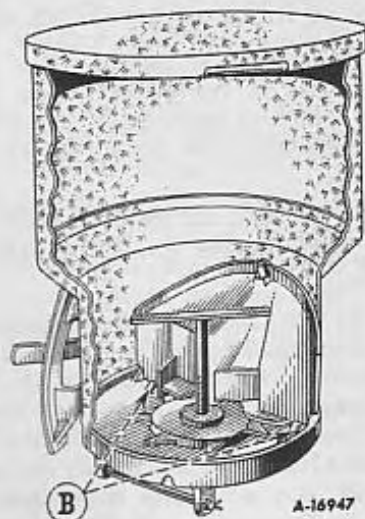
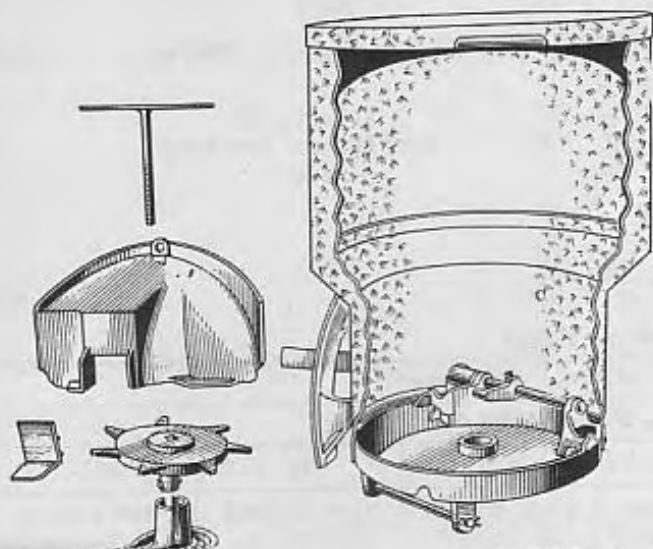
- Two fittings in hopper shaft bearings.
- Two fittings in countershaft bearings.
- One fitting in countershaft clutch.
- Two fittings in chain tightener sprockets

**HOPPER MECHANISM:** Use kerosene or paraffin oil to cut the paint on the hopper mechanism so the parts will work freely.

Use nothing but kerosene or paraffin oil on the interior mechanism.

### Cleaning the Fertilizer Hopper

As most fertilizer becomes set and hard when left standing, it is necessary to empty the hoppers and clean the feeding mechanism frequently. All working parts in the hopper are easily removed for cleaning. See *Illust. 27*.



Illust. 28  
Fertilizer hopper cut away  
to show the inside of  
hopper with the parts in  
working position.



# CUB-53-A and CUB-53-AA FERTILIZER UNITS (Special) - Continued

## Sowing Fertilizer

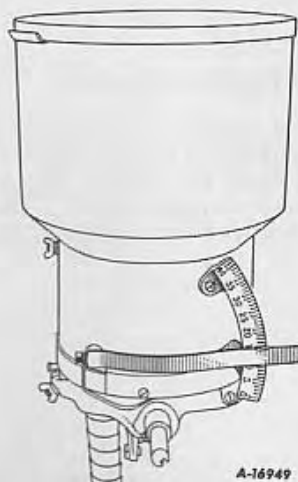
Fertilizer must be free from all hard substances, such as stones, iron or other foreign matter that is liable to break the feeding device.

The quantity of fertilizer sown is regulated by the lever on the outside of the hopper which engages the notches in the quantity rack. See *Illust. 30*.

**CAUTION!** Do not attempt to push the quantity lever below Notch No. 5 with fertilizer in the hopper.

Owing to the fact that there is a great variety of commercial fertilizer on the market, it is impossible to make a sowing table that would indicate with any accuracy the actual amount of fertilizer sown per acre. Many factors can affect the accuracy of any table; for example, dry or damp material, fine or coarse, etc. However, a table of approximate quantities sown is given for use as a guide when setting the quantity lever.

The sowing table below is based upon the use of dry, free-running commercial fertilizer weighing a little over 3 pounds per quart. All quantities given are approximate.



*Illust. 30*  
Fertilizer quantity lever.

Fertilizer Sowing Table

Number of Notch	Pounds per Acre - 40" Rows					
	Using Feed Wheel					
	NB 2 554 (Special)		NC 316 (Regular)		NC 115 (Special)	
	Slow Speed 15-Tooth Sprocket	Fast Speed 7-Tooth Sprocket	Slow Speed 15-Tooth Sprocket	Fast Speed 7-Tooth Sprocket	Slow Speed 15-Tooth Sprocket	Fast Speed 7-Tooth Sprocket
0	56	105	140	260	300	560
5	87	165	150	280	330	610
10	193	360	200	370	400	740
15	306	570	300	560	490	910
20	..	..	375	700	600	1150
25	..	..	460	850	690	1280
30	..	..	550	1020	790	1460
35	..	..	630	1170	880	1630
40	..	..	680	1260	940	1740

**NOTE:** With NB 2 554 feed wheel, do not use quantity lever beyond Notch 15.

**NOTE:** The quantity of fertilizer sown at a given setting can be checked by determining the amount of fertilizer used in the forward travel required for one acre. For a one-row machine set for 40" rows (40" strip), the forward travel required for one acre is 792 rods.

**IMPORTANT:** For planters using Type "C" Duplex Hopper or "POAX" Reverse Feed Cotton Hopper, deduct 25% from the above distribution table. To maintain the distribution quantities shown above when planting with these hoppers, it will be necessary to use a 12-tooth sprocket

(PO 2 639 B) on the planter feed shaft for driving the fertilizer hopper. This sprocket may be obtained through your International Harvester Dealer.

For row spacings other than 40", the quantity is proportionately larger for narrower spacing and proportionately smaller for wider spacing.

When through using the fertilizer unit for the season, clean it thoroughly, including the tubes and the fertilizer boots, and oil with kerosene.



## INSTRUCTIONS FOR SETTING UP

(Adjusting and Operating Instructions are on page 4)

Remove all wires and arrange parts conveniently.

Lubricate all bearings and moving parts as you proceed, and see that they work freely.

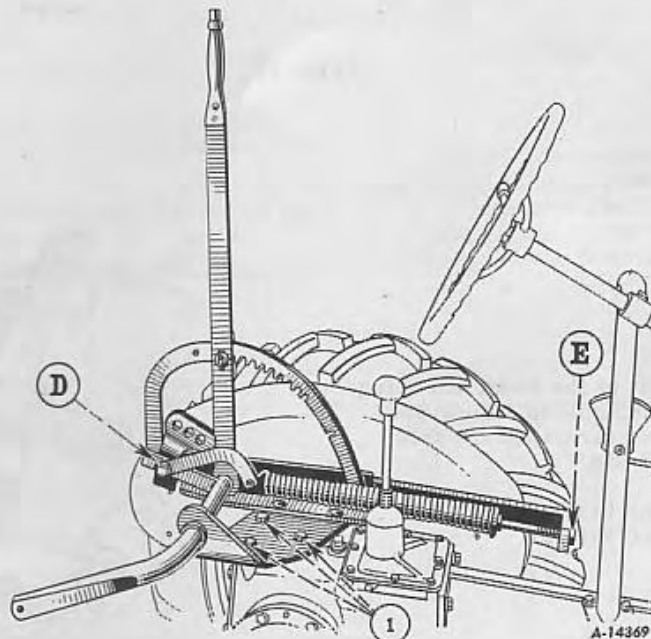
Bolts must be used in the holes in which they are found, or in parts to which they are attached, unless otherwise shown.

Shaded portions in the illustrations show parts to be assembled; these must be placed on the machine in the order numbered.

Wherever the terms "left" and "right" are used, it should be understood to mean from a position behind and facing the machine.

We reserve the right to make changes or improvements in the design or construction of any part without incurring the obligations to install such changes on any machine previously delivered.

### MASTER CONTROL LEVER (Manual Control)



Illustr. 31

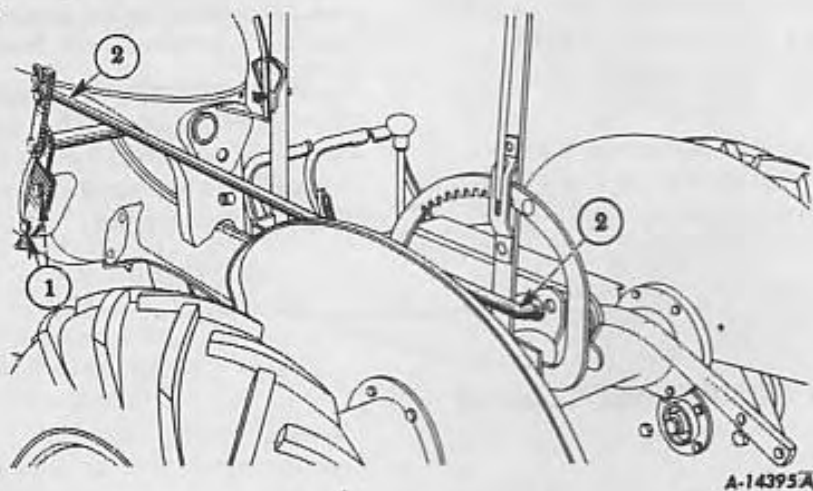
1. Bolt the lever unit to the transmission case with three cap screws.

For greater ease when lowering the planter to the proper depth at the end of the row, set the bolt "D" in the bottom of the slot in the lift arm.

Balance the weight of the planter as desired by adjusting the spring tension at "E".

**CAUTION!** Whenever the implement is removed from the tractor, the master control lever must always be set in the FORWARD notch in the quadrant. If another implement is not to be attached, the tension of the counterbalancing spring should be relieved.

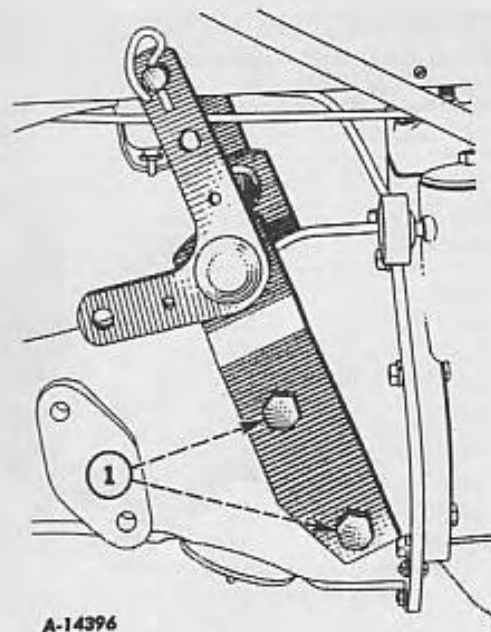
## FRONT ROCKSHAFT (Manual Control)



Illustr. 32

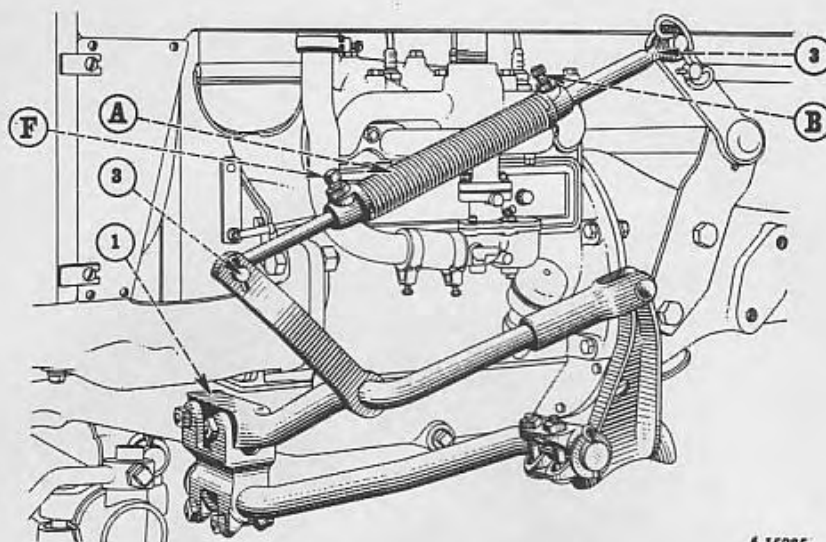
1. Bolt the rockshaft to the front attaching pad on the tractor clutch housing. Four special head cap screws are furnished for this purpose. See Illustr. 33 also.

2. Attach the lift link to the lever and rockshaft as shown in Illustr. 32.



Illustr. 33

# UNIVERSAL MOUNTING FRAME



A-15285

Illustr. 34  
Left side of tractor.

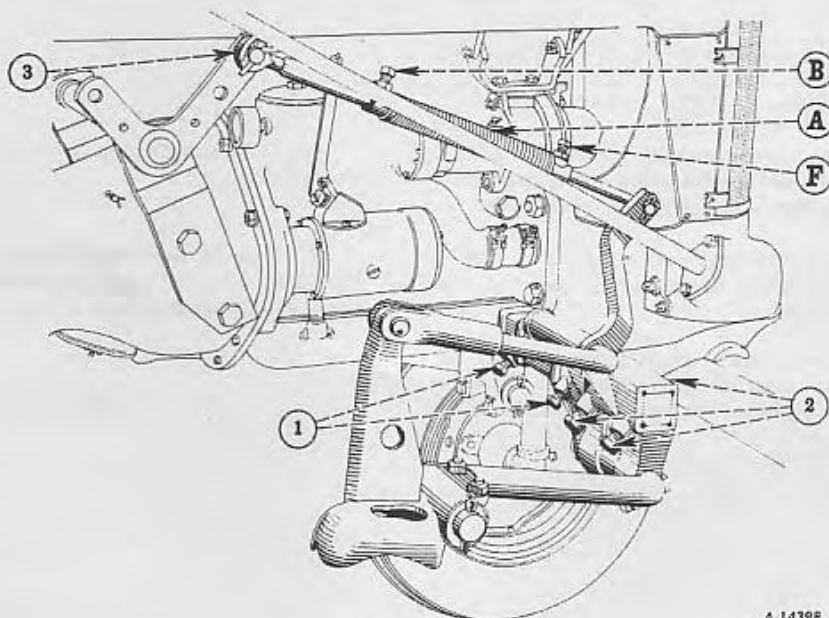
See Illustrs. 34 and 35.

1. Slide the left frame bar through the steering gear housing base and tighten the set screws.

2. Slide the right frame over the end of the left frame bar and tighten the set screws.

3. Attach the push rods to the lift arms and front rockshaft as shown.

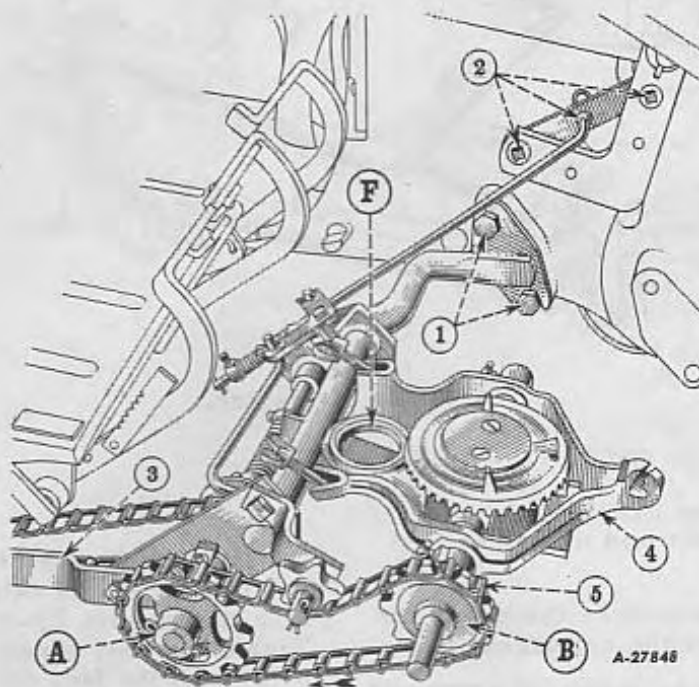
**CAUTION!** Loosen the set screw "F" (also see Illustr. 3) and extend the push pipe extension to measure 23-1/4", as shown in Illustr. 3. Tighten the set screw and secure the adjustment with the jam nut.



A-14398

Illustr. 35  
Right side of tractor.





Illust. 36

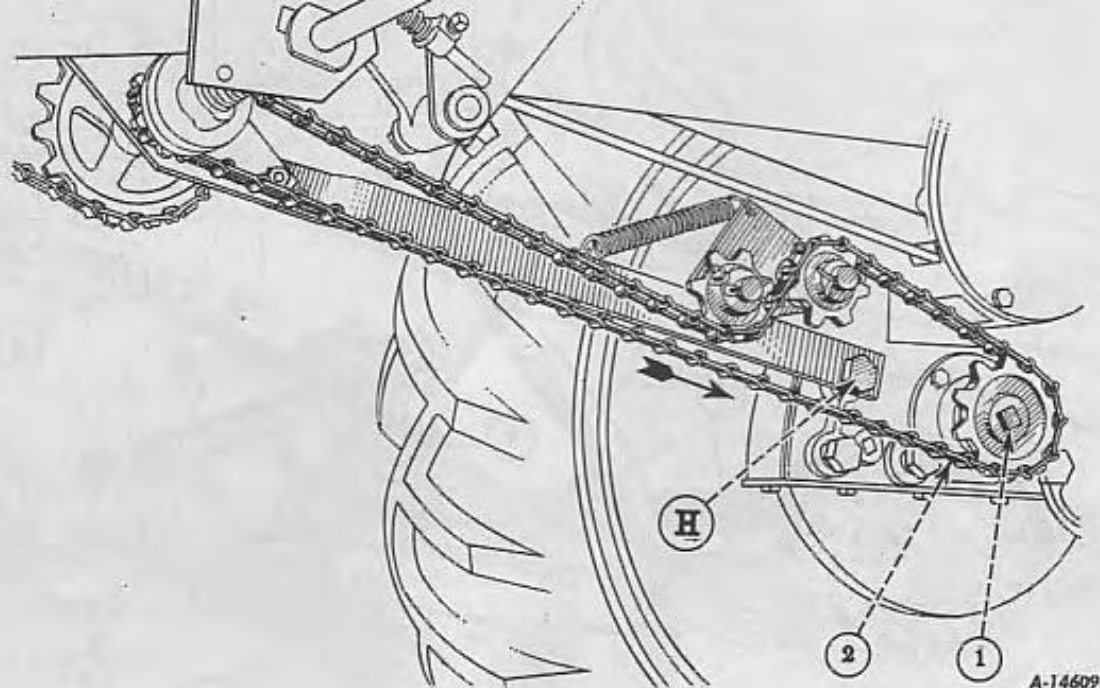
1. Attach the countershaft frame to the tractor as shown using the special hexagon head bolts furnished, and tighten securely.

2. Bolt the throw-out rod adapter to the rockshaft arms and connect the throw-out rod as shown.

3. Attach the countershaft frame brace to the rear axle housing with the special hexagon head bolts furnished. *Also see "H", Illust. 37.*

4. Bolt the hopper bracket to the countershaft frame.

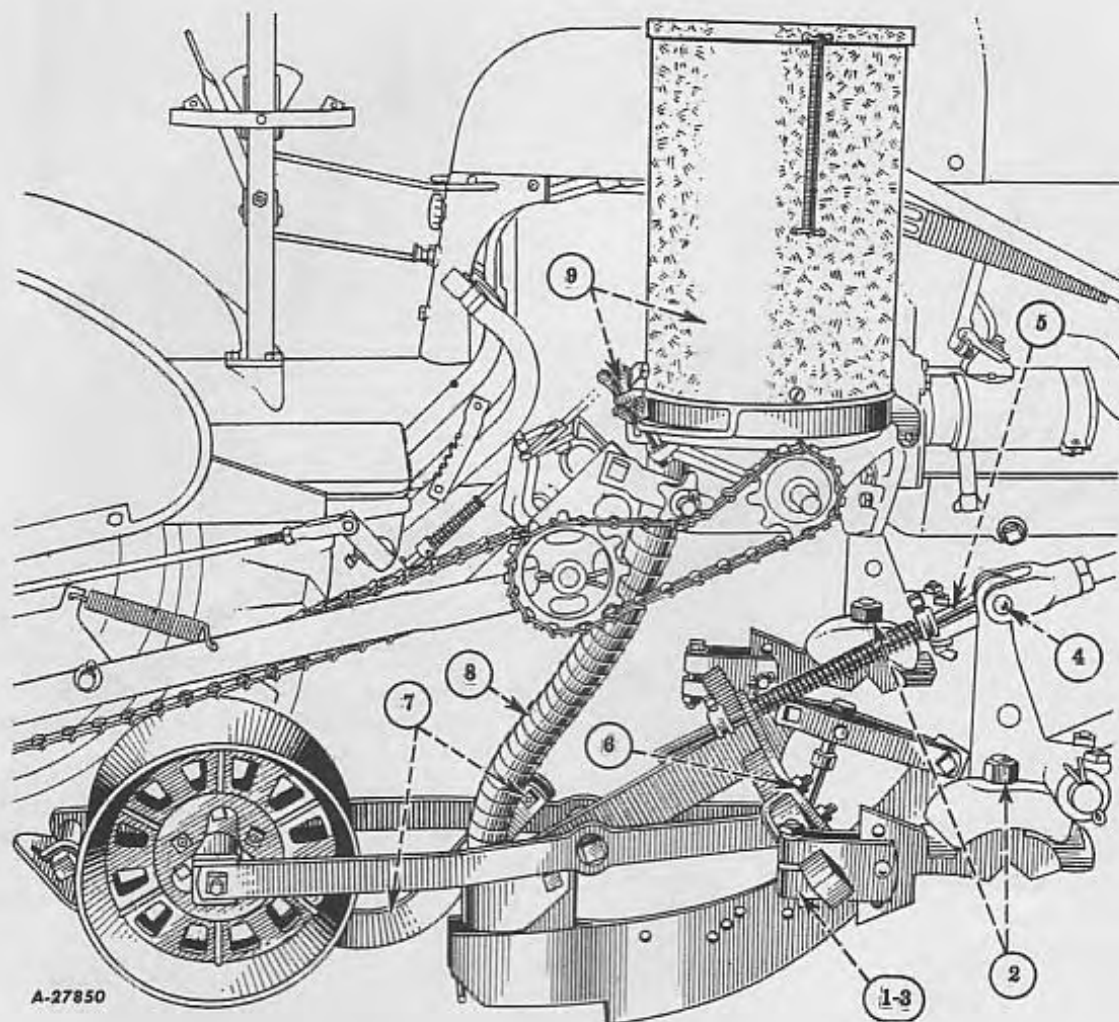
5. Put on the hopper drive chain. *Also see Illusts. 1 and 2 and the paragraph "CHAINS" in the Adjusting and Operating Instructions.*



Illust. 37

1. Attach the seed plate drive sprocket to the tractor drive spindle with the machine bolt furnished.

2. Put on the main drive chains. Also see paragraph "CHAINS" in the Adjusting and Operating Instructions.



Illustr. 38

1. Clamp the attaching bars to the tool bar. Leave the clamps loose enough to slide on the tool bar.

2. Slide the ground unit under the tractor and attach it to the universal mounting frame as shown. Tighten the nuts securely.

3. Slide the runner assembly sideways to locate the runner midway between the attaching bars, then tighten the attaching bar clamps securely.

4. Remove the pin through the upper parallel link and the tool bar clamp, replace it with the longer pin found at the end of the pressure rod and secure it with the cotter pin in the second hole.

5. Put the end of the pressure rod over the end of the pin and secure it with the quick-attachable cotter.

6. Line up the pressure rod assembly parallel with the runner and clamp the pressure rod bracket to the tool bar with the U-bolt.

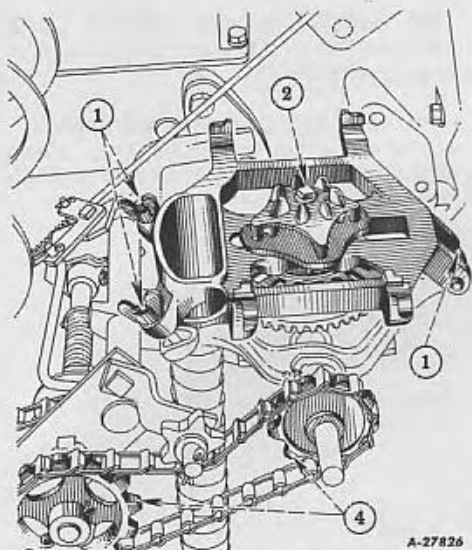
7. Attach the covering blade to the press wheel left frame rail.

8. Run the seed tube down through the opening "F" (Illustr. 36) in the hopper bracket so the tube is supported by the flange at the end of the tube, then connect the lower end to the tube retainer.

9. Put on the hopper.



## TYPE "C" DUPLEX HOPPER (Special)

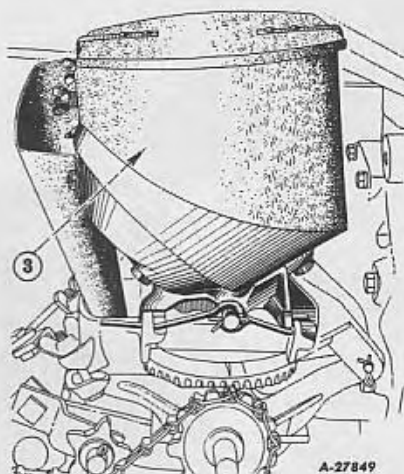


Illustr. 39

1. Secure the adapting plate assembly in position with the wing nuts as shown in *Illustr. 39*.

2. Remove the plug bolt from the center hole in the drive plate. Place the driving gear on the plate so the lugs on the gear fit down into the holes in the face of the plate. Secure the driving gear in place with the bolt which is furnished with the driving gears.

3. Put on the hopper.



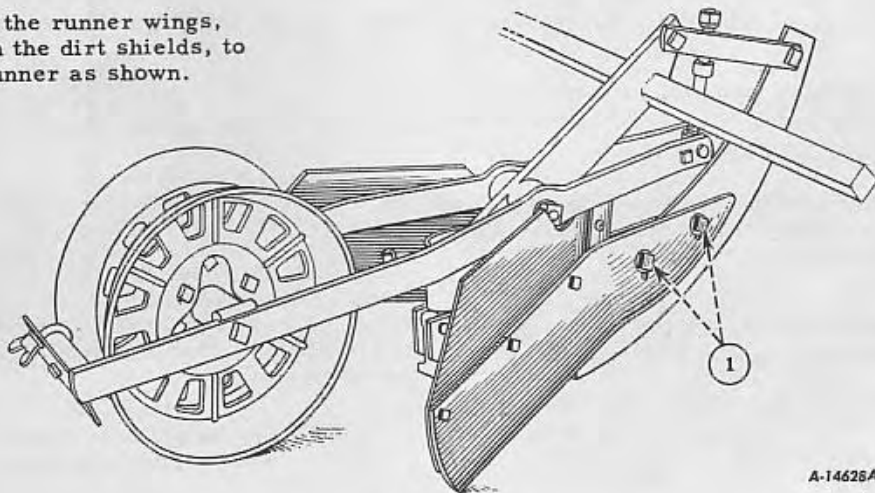
Illustr. 40

4. Install the 14-tooth sprocket on the countershaft and the 9-tooth sprocket on the hopper drive shaft. Use the 10-20 hopper gear ratio. *Also see Illustr. 7.*

NOTE: The driving gears with the number of cogs that will give the desired planting distances should be selected. See "TYPE 'C' DUPLEX HOPPER" in the Adjusting and Operating Instructions.

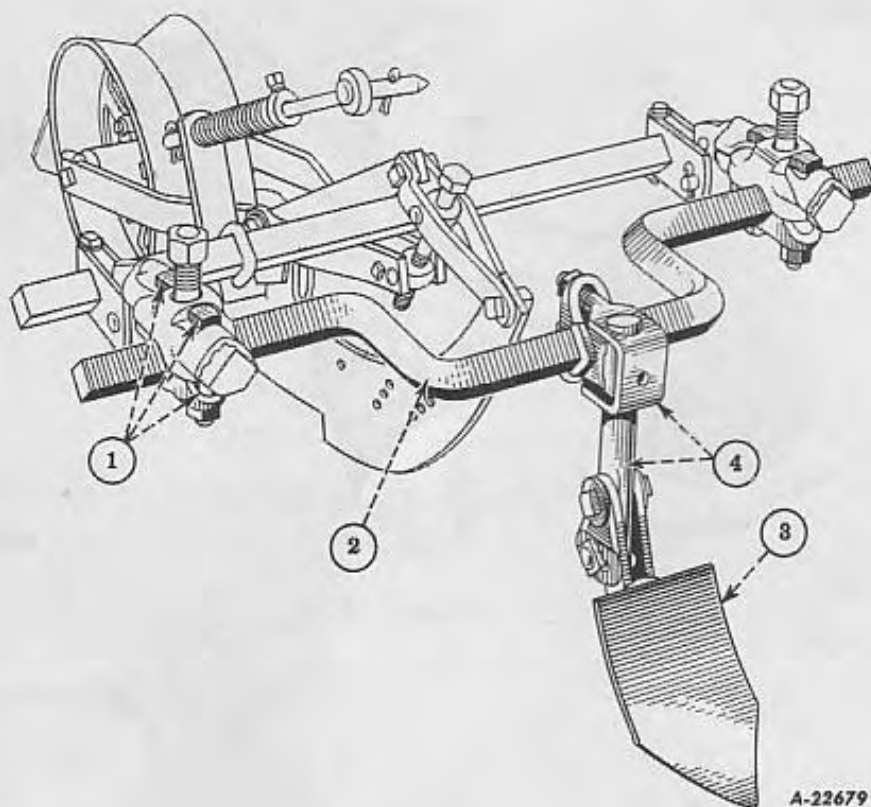
## RUNNER WINGS and DIRT SHIELDS (Special)

1. Attach the runner wings, complete with the dirt shields, to the planter runner as shown.



Illustr. 41  
37

## FURROWING ATTACHMENT (Special)



Illustr. 46

1. Remove the ground unit from the mounting frame and remove the short bolts holding the leveling shims to the tool bar extensions. Replace these bolts with the longer bolts furnished and attach the tool bar cap.

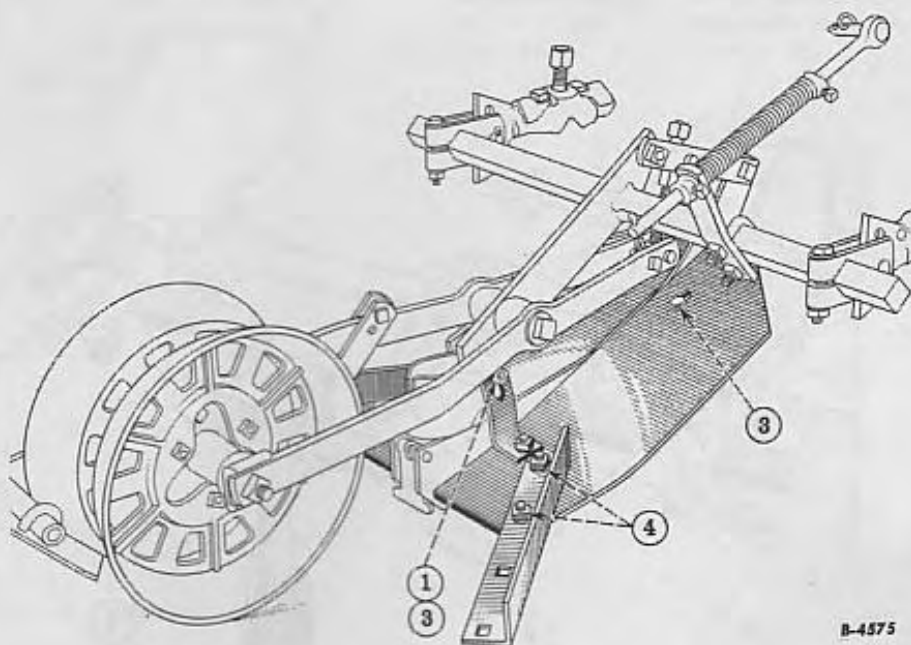
2. Clamp the tool bar to the tool bar extensions.

3. Bolt the opener shovel (a sweep may be used if desired) to the standard.

4. Clamp the standard with the shovel to the tool bar. Set it to run in line with the runner.

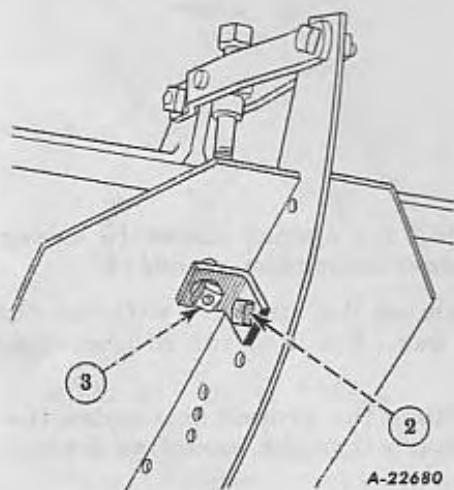
5. Place the ground unit under the tractor and reattach it to the mounting frame.

## GAUGE SHOE ATTACHMENT (Special)



B-4575

Illustr. 47



A-22680

Illustr. 48

1. Bolt the rear gauge shoe braces to the runner, using the square spacers inside of each brace.

2. Bolt the front gauge shoe braces to the runner. See Illustr. 48.

3. Loosen the bolts holding the gauge shoes to the front braces and adjust the gauge shoes to give the desired planting depth. Tighten all bolts securely.

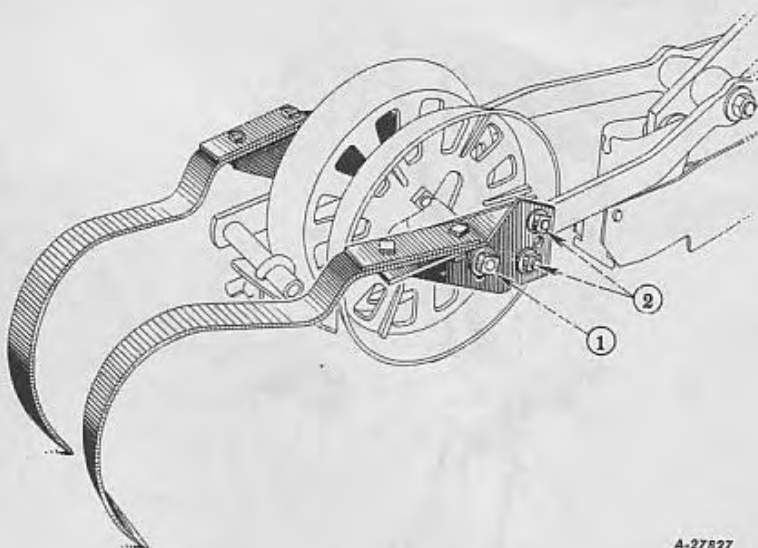
4. Bolt the clod sweeps to the gauge shoes as shown.



## SPRING TOOTH COVERING ATTACHMENT (Special)

1. Attach the spring coverers with brackets, using the long axle bolt which is furnished.

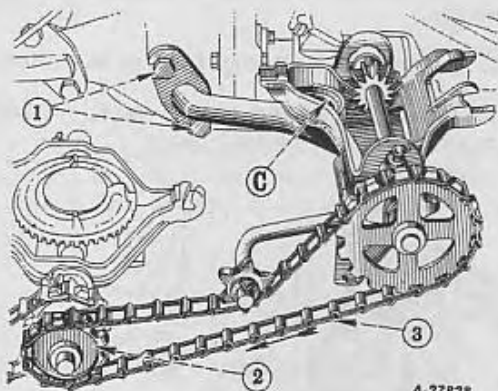
2. Use the clip and two  $3/8$ " bolts furnished, with the bolts above and below the press wheel frame, and secure the front end of the spring coverer bracket as shown. The two  $1/2$ " bolts found with the attachment will be discarded.



A-27827

Illustr. 49

## CUB-53-A and CUB-53-AA FERTILIZER UNITS (Special)



A-27828

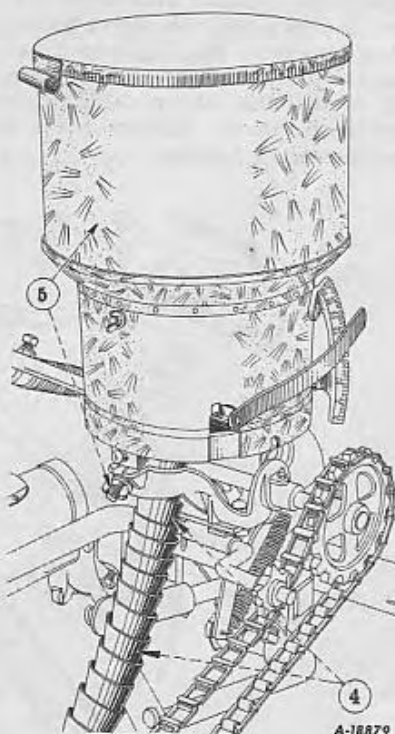
Illustr. 50

1. Attach the hopper bracket support to the front mounting pad on the side of the tractor as shown.

2. Put the fertilizer drive sprocket on the end of the planter feed shaft and secure it with the cotter.

3. Put on the drive chain. See "CHAINS" in the Adjusting and Operating Instructions.

4. Run the delivery tube down through the opening "C" Illustr. 50 in the hopper bracket so the tube is supported by the flange at the end.



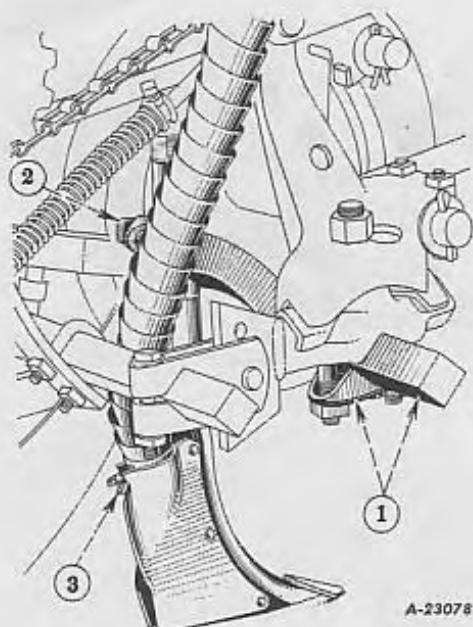
A-18879

Illustr. 51

5. Set the hopper on the support and secure it in place with the wing nut.

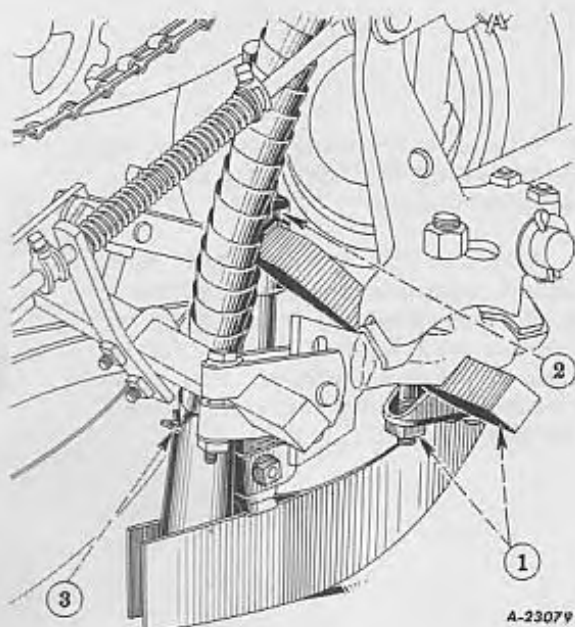
## CUB-53-A FERTILIZER UNIT (Special)

### Flat Planting



Illustr. 52  
Fertilizing with Deep Applicator.

1. Detach the ground unit from the mounting frame, remove the two short bolts holding the leveling shims on the right tool bar extension. Replace these bolts with the longer ones furnished, install the clamp cap and clamp the tool extension in place. Reattach the ground unit to the mounting frame.

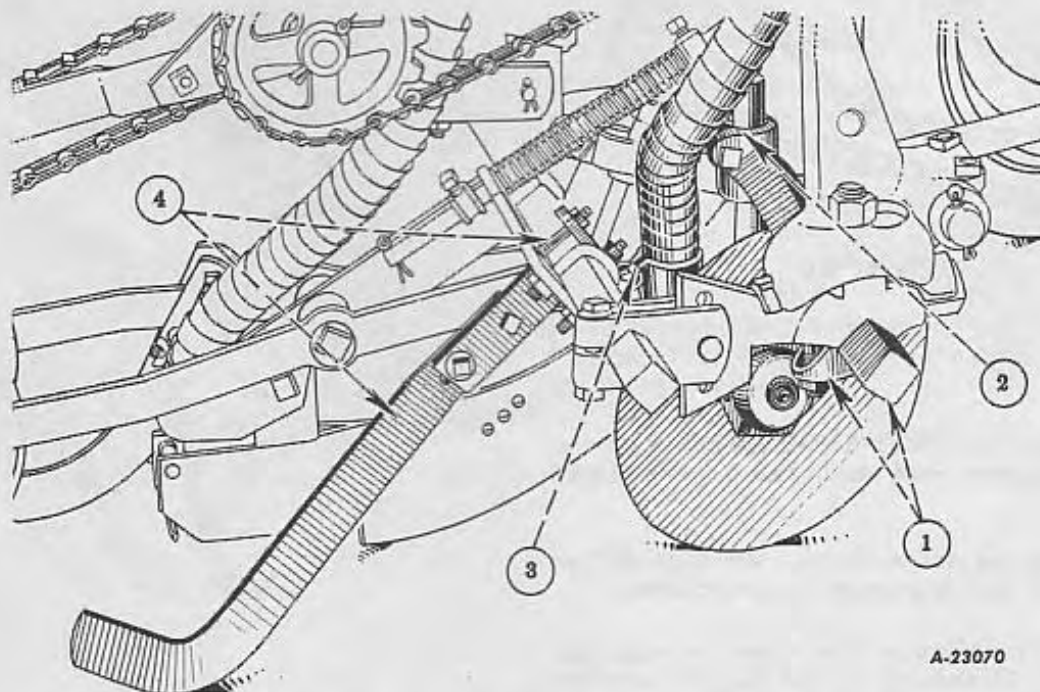


Illustr. 53  
Fertilizing with Runner Applicator.

2. Clamp the applicator standard to the extension.

3. Attach the delivery tube to the boot.

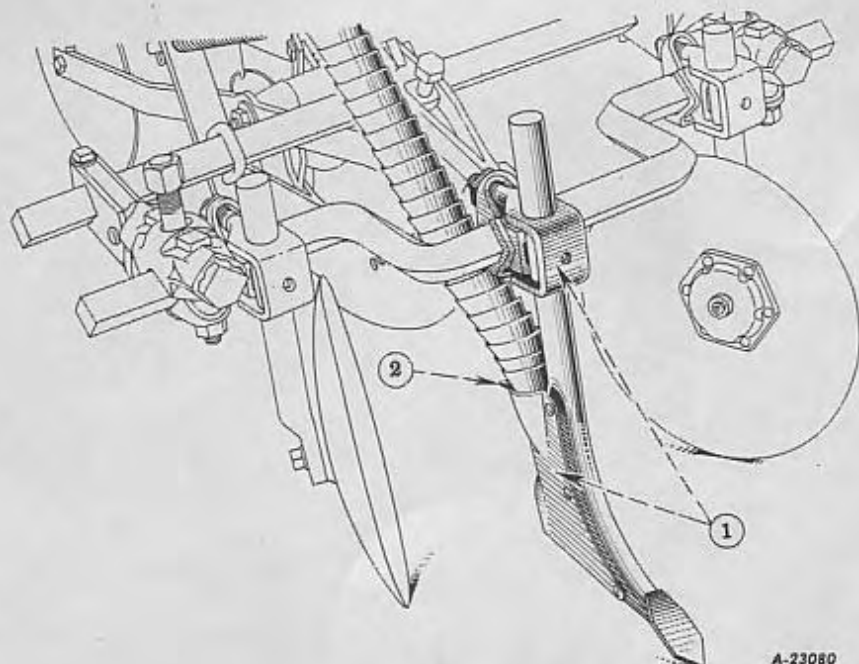
4. FOR THE DISK APPLICATOR ONLY: Clamp the covering blade to tool bar.



Illustr. 54  
Fertilizing with Disk Applicator.

# CUB-53-AA FERTILIZER UNIT (Special)

## Bed Planting

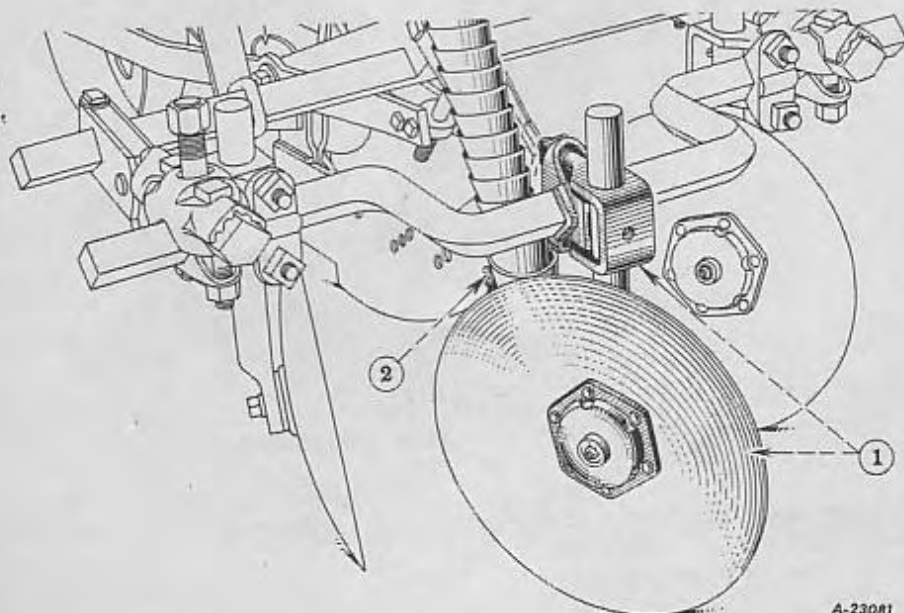


A-23080

Illustr. 55  
Fertilizing with Deep Applicator.

1. Clamp the opener standard to the bedding tool bar. Set it to place the fertilizer to one side of the seed row and for depth as desired.

2. Attach the delivery tube to the spout.

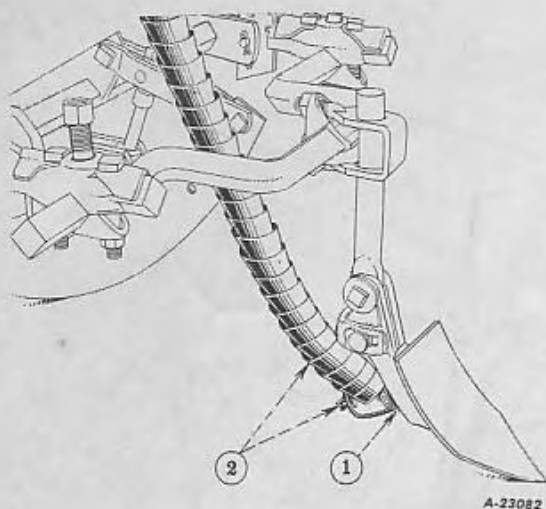


A-23081

Illustr. 56  
Fertilizing with Disk Applicator Attachment.

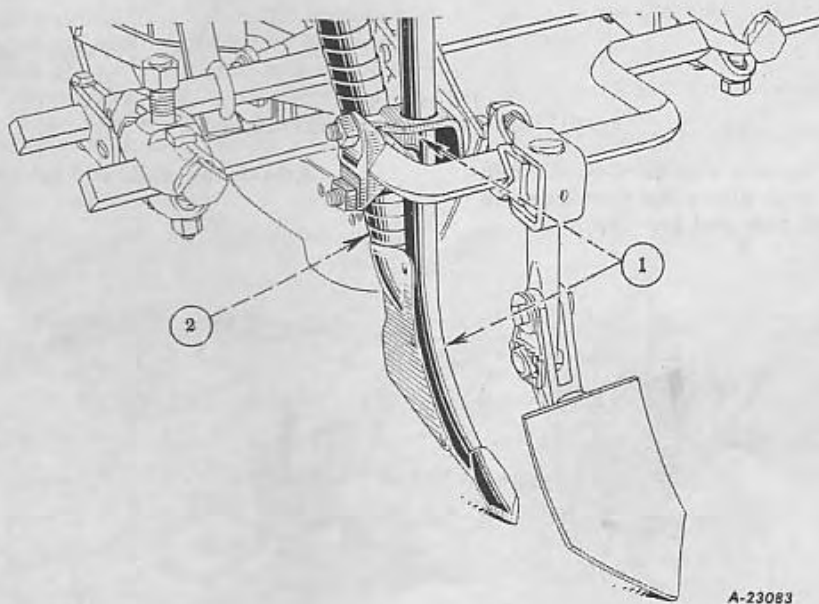
## CUB-53-AA FERTILIZER UNIT (Special) - Continued

### Furrow Planting



1. Attach the tube connector to the shovel bolt.
2. Attach the delivery tube to the connector.

Illust. 57  
Fertilizing in seed furrow.



Illust. 58  
Fertilizing with Deep Applicator.

1. Clamp the opener standard to the tool bar as shown. Adjust the tool bar sideways in the tool bar extension clamps to place the fertilizer as desired.

2. Attach the delivery tube to the boot.